



36
Volume XXIV

January : 1928

3372 7
Number 1

The West Virginia Medical Journal

Published by the West Virginia State Medical Association

Official Publication of The Hospital Association of West Virginia, The Central
Tri-State Medical Society, (Composed of West Virginia, Ohio and Kentucky)

Table of Contents on Page XXVIII

CALCREOSE

A Good Expectorant...

CALCREOSE is effective as a stimulant expectorant in the treatment of chronic bronchitis and other bronchial affections, as well as in tuberculosis because it presents the well-known therapeutic effect of creosote in a form that is more agreeable to the patient.

CALCREOSE can be administered in large doses over long periods of time with little or no disturbing effects on sensitive stomachs. In cases where slight discomfort may be experienced, tolerance is rapidly developed by starting with a small dose and gradually increasing it.

The Maltbie Chemical Company
NEWARK, NEW JERSEY

Manufacturers of Pharmaceutical Products

Samples of Tablets to Physicians on Request



PAUL V. ANDERSON, M. D.
O. B. Darden, M. D., Associate

JAS. K. HALL, M. D.
J. H. Royster, M. D., Associate

Westbrook Sanatorium

RICHMOND, VIRGINIA



THE SANATORIUM is a private institution with 150 beds, located in the Ginter Park suburb on the Richmond-Washington National Automobile highway. Midway between the North and the distant South, the climate of this portion of Virginia is almost ideal. Nearby are many reminders of the Civil War, and many places of historic interest are within easy walking distance.

THE PLANT consists of fourteen separate buildings, most of which are new, located in the midst of a beautifully shaded 50-acre lawn, surrounded by a 120-acre tract of land. Remoteness from any neighbor assures absolute quietness.

THE LARGE number of detached buildings makes easy, satisfactory and congenial groupings of patients. Separate buildings are provided for men and women. Rooms may be had single or ensuite with or without private bath. A few cottages are designed for individual patients.

THE BUILDINGS are lighted by electricity, heated by hot water, and are well equipped with baths. The water supply for the entire institution is derived from an artesian well on the grounds of approved therapeutic value.

THE SCOPE of the work of the sanatorium is limited to the diagnosis and treatment of nervous and mental disorders, alcoholic and drug habituation. Every helpful facility is provided for these purposes, and the institution is well equipped to care for such patients. It affords an ideal place for rest and upbuilding under medical supervision. Four physicians reside at the sanatorium and devote their entire attention to the patients. A chartered training school for nurses is an important part of the institution in providing especially equipped nurses — both men and women — for the care of the patients.

SYSTEMATIZED out-of-door employment constitutes an important feature of the treatment. Wonderful work in the arts and crafts is carried on under a trained teacher. There are bowling, tennis, croquet, billiards and pool.

THE SANATORIUM maintains its own truck farm, dairy and poultry yards.



— Illustrated Booklet on Request —

The West Virginia Medical Journal

Directed and Edited by the Committee on Publication

[The Committee on Publication is not responsible for the authenticity of opinion or statements made by authors or in communications submitted to this Journal for publication. The author or communicant shall be held entirely responsible]

JAMES R. BLOSS, *Editor-in-Chief* - - - - - Huntington

ASSOCIATE EDITORS:

WALTER E. VEST
Huntington

HARRY M. HALL
Wheeling

J. HOWARD ANDERSON
Martown

C. A. RAY
Charleston

MR. JOE W. SAVAGE, *Secretary-Business Manager*, Charleston

Entered as Second Class Matter, January 1, 1926, at the Postoffice at Charleston, West Virginia

Volume XXIV

JANUARY : 1928

Number 1

THE INTERPRETATION AND SIGNIFICANCE OF CARDIAC ARRHYTHMIAS *

By VIRGIL E. SIMPSON, A.B., M.D., F.A.C.P.
Louisville, Ky.

DISORDERS of the heart mechanism, with the advent of instruments of precision, have in the present decade come to possess greater interest for the clinician than endocarditis with valvular disease. With this intensive study of what in the previous decade, was thought of as functional disturbances, has come the recognition that these arrhythmias are expressions of neuro-myocardial disease affecting the expectancy of the patient to a greater extent than endocardial disease.

Time precludes discussion of all the arrhythmias now susceptible of accurate diagnosis and only five of them will be discussed here, viz. simple paroxysmal tachycardia, auricular flutter, auricular fibrillation, heart block and alternation of the heart.

Study of these by the polygraph and electrocardiograph has made possible their clinical recognition; their significance has

been revealed and their therapy is being more intelligently carried out. If an explanation be deemed necessary for considering them from the viewpoint of their interpretation and significance, let it be the important fact that such study is placing an added capacity in the reach of the clinician at the bedside to recognize them with his unaided resources. Entertaining these convictions this address is presented to the rank and file of this association rather than electing to construct it along the lines that might appeal to the few who enjoy the opportunity of studying these problems with the aid of instruments of technical precision.

Simple Paroxysmal Tachycardia is an attack of heart hurry, of sudden onset, variable but transient duration and with an abrupt ending.

Mechanism: It is not dependent upon a simple disturbance of the normal flow of nerve impulses as was once thought when the heart rate is affected by such stimuli as

* Oration on Medicine delivered before the Sixtieth Annual Meeting of the West Virginia State Medical Association, at White Sulphur Springs, June 21, 1927.

fever or exercise. The normal pacemaker is merely stimulated to initiate more rapid impulses and the rate is accelerated.

Electrocardiograms: In such a heart the electrocardiogram shows a physiological tracing except in rate. Figure 1 shows a

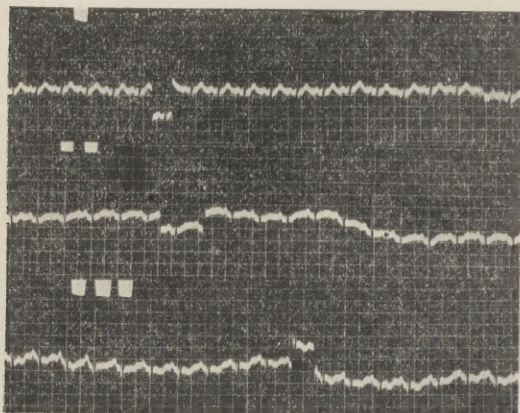


FIG. 1—3018—8-5-26. Heart Rate 144. Normal Complexes. Simple Tachycardia. Toxic Adenoma—Basal Rate plus 101.

rapid heart taken in a case with a toxic adenoma and is normal in shape and sequence. This is a simple tachycardia but is not paroxysmal; it may last for days or weeks and with the disappearance of the cause gradually returns to a normal rate.

In simple paroxysmal tachycardia, on the other hand, the termination is as abrupt as the onset. Figure 2 shows the end of the paroxysmal phase and the beginning of the normal rhythm. The transition is immediate. The second evidence distinguishing paroxysmal from the simple heart hurry is that the tracings in the paroxysmal type show that the place of origin of the impulse changes with the onset of the attack. This feature can best be shown by analyzing two curves made from the heart being studied, the first curve made during a period of normal rate and the second during the paroxysmal period. In such a comparison it will be observed, if the paroxysm is of auricular origin, that the ventricular complexes of the curve during the paroxysm are identical with those of the curve during normal action. It follows, therefore, that the impulses of contraction traveled along the normal path from the auricle to the ventricle and established the

paroxysm as of auricular origin. Paroxysmal tachycardia is usually of auricular origin and a study of the two curves in Figure 3, shows the auricular complexes are unlike. The left curve in the figure shows an upright P wave in all leads while in the right curve it is inverted in leads II and III. In the left curve the impulses originate in the sinus node, situated in right auricle near the superior vena cava which is the normal pacemaker of the heart. In the right curve of the figure the impulse no longer originates normally but from a new, but abnormal, area in the auricle. Curves made during the paroxysmal stage only rarely provide sufficient data for a correct conclusion as to the origin of the impulses.

Clinical Considerations: The heart rate in paroxysmal tachycardia usually ranges from 150 to 180. The rate is not altered by change of posture, eating drinking or changes in respiratory activity. It occasionally arises in the ventricle and rarely in the auriculo-ventricular node. Paroxysmal tachycardia is essentially a continued series of premature auricular contractions. Figure 4 illustrates diagrammatically, the normal conduction system of the heart. The impulses should arise at the sino-auricular node, sometimes called the pacemaker; it is located at the juncture of the superior vena cava and the right auricle. From this origin the

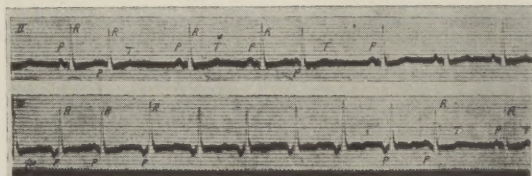


FIG. 2—Two curves from a case of simple paroxysmal tachycardia. The upper curve is from the period of slow and the lower curve is from the end of a period of rapid heart action. In the upper curve the first beat of the normal rhythm is shown at the very end of the curve. The curves show the ectopic origin of the paroxysm. Both slow and fast rhythms are interpreted by occasional premature beats having a common and auricular focus of origin. (Lewis.)

impulse travels over the auricles reaching the auriculo-ventricular node or node of Tawara, passes through the auriculo-ventricular neuro-muscular bundle (His) divides to be carried over the right and left branches of this bundle to finally terminate in the

fibers of Purkinje from whence the ventricular contractions are set up.

There is usually pulsation of the cervical veins, and some breathlessness. The pulse is put forward as a method of reaching these appear almost hopeless, particularly where results that it rarely fails to attain. in Galvanism. Preceded by diathermy organisms. He points out that wherever all products formed during the disintegration specifics against syphilis are employed. In humble opinion it is not likely to be finally having primary syphilis are said to involve protein disease. Furthermore, when we rate is often inconstant in force and apparently irregular; when the heart rate is very high, it should never be depended upon to give accurate knowledge of the rate of heart contraction. The heart rate should always be determined by auscultation. Murmurs present before the paroxysm usually disappear during the attack. Premature beats are not infrequent during the intervals. The duration of the attacks is fairly constant in any given patient, but vary from a few seconds to a few days in different patients. The less frequent the attacks the longer do they last. Patients are often unconscious of attacks of a few seconds duration especially after attacks covering long periods in the elderly.

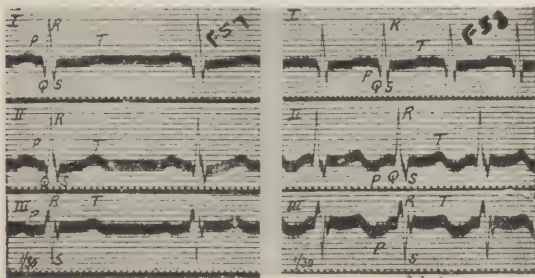


FIG. 3—Two sets of curves from a case of simple paroxysmal tachycardia. The left set was taken while the heart beat slowly; the right set while it beat rapidly. The curves demonstrate the supraventricular origin of the paroxysm. The inversion of P in leads II and III in the left set indicates that it arose in an ectopic auricular focus.

The abnormality is usually spoken of as a palpitation. Flatulence, nausea, even vomiting, lassitude and a free perspiration are not infrequent symptoms. The digestive disturbances do not begin at once, but generally appear an hour or so later and continue until

the paroxysm ends. Anginal symptoms may be experienced but are not common. Tenderness over the sterno-cleido mastoid and tendons of the pectoral and deltoid muscles is frequent. If the attack is severe or prolonged, a group of symptoms evidencing an

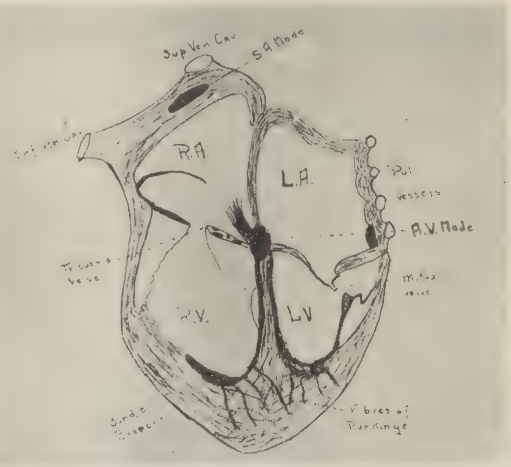


FIG. 4—A drawing designed to show the normal conduction system of the heart. Contraction impulses originate at the S-A node in the right auricle, spread over the muscular fibers of the auricles to be gathered up at the A-V node, delivered through the Bundle of His, passed over the right and left branches of that Bundle and terminating in Purkinje's fibers to inaugurate ventricular contractions.

embarrassed circulation occurs. Cyanosis, venous engorgement, enlargement of the liver with tenderness and even pulsation may be noted; the cardiac dulness increases, the spleen becomes engorged, the ankles swell, a cough develops, often with moist rales and even a blood-stained sputum is not infrequent. The attack may terminate in ascites, delirium, pulmonary edema and death.

If normal rhythm be established even in this late stage, rapid subsidence of alarming symptoms occurs and no more spectacular recovery can be witnessed in one's clinical experience.

The condition must be differentiated from the tachycardia of hyperthyroidism, auricular flutter and fibrillation, ruptured compensation and heart block. The outlook for a case of paroxysmal tachycardia is not an unclouded one.

The tendency is toward the development of fibrillation with a long period intervening, perhaps, but arriving nevertheless. Such an evolution is characterized by the initial ap-

pearance of premature contractions occurring singly and at long intervals; sooner or later these group themselves into paroxysms followed in time by the coalescence of the paroxysms with irregularity of the beats still occurring. This is fibrillation. It has

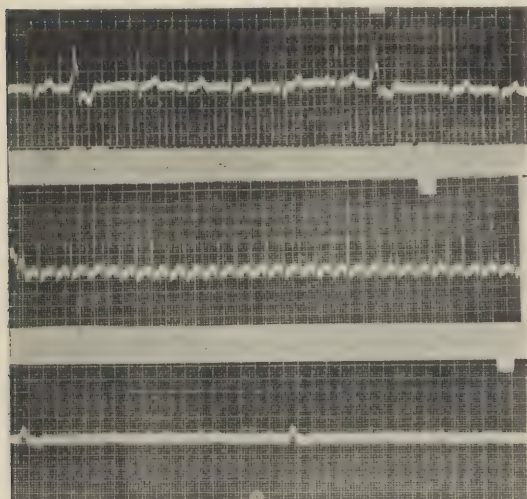


FIG. 5—No. 2300. 9-6-26. Upper tracing taken during interval between paroxysms of tachycardia shows premature beats. Heart rate 87-90. 1-26-27. Middle tracing taken during attack of paroxysmal tachycardia, heart rate 246. 6-9-27. Lower tracing taken six months later again shows premature beats. Heart rate 78, taking digitalis.

been asserted (Bonveret) that there was no pathology in paroxysmal tachycardia. This can scarcely be accepted in the light of its evolutionary tendency coupled with the fact that it is frequently coincident with determinable organic lesions ante-mortem.

Definition: Auricular flutter may be defined as an auricular tachysystole occurring at an average rate of 300 per minute due to the stimulus of a revolving impulse originating outside the sinus node with regular, accelerated ventricular contractions one-half, one-third or one-fourth the frequency of the auricles.

The revolving impulse that inaugurates contractions of the auricles is designated by Lewis as "circus movement" and is described by him as "a continuous movement of the contraction wave around a ring of muscular tissue such as is provided by the mouths of the supra and infra vena cava." When such a revolving impulse becomes established it travels in the ring of muscular tissue con-

tinuously and dominates the response of the whole auricle. The normal discrete impulses which should arise in the sino-auricular node creating individual auricular contraction waves are lost and as each new, abnormal wave completes its circle, the impulse spreads to the adjoining muscular tissue, creating a contraction of the whole auricle. After the auricle contracts the impulse is gathered up at the node of Tawara, passes down the bundle of His to be relayed over the right and left branches of the bundle to the fibres of Purkinje resulting in contraction of the ventricular muscles. The upper cut, Figure 6 shows, diagrammatically, how this conduction wave induces auricular contraction. The impulse from the sinus node

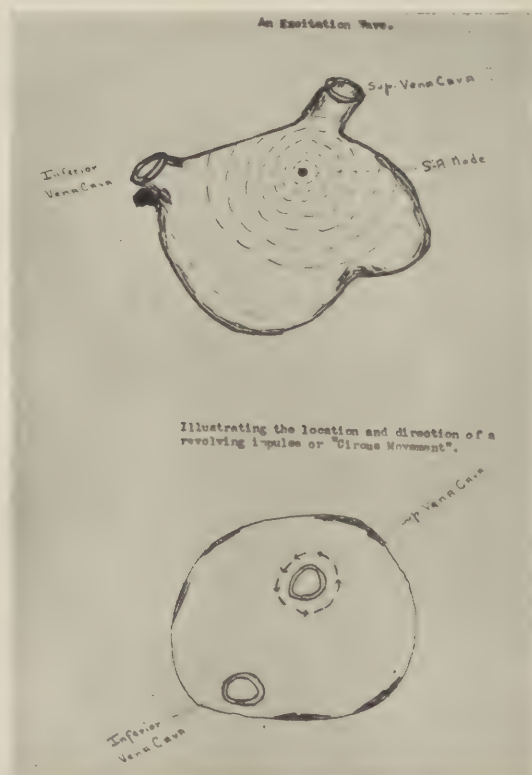


FIG. 6—The upper cut shows diagrammatically a normal conduction wave originating at the sinus node. In the lower cut the arrows indicate the path of an abnormal revolving impulse.

varies in speed, travelling four times faster in the ventricles than in the auricles where it is conducted by muscular tissue alone. The lower cut, Figure 6, is a drawing designed to convey an idea of the mechanics of the new path of impulse in auricular flutter.

If the ventricles respond to each impulse thus delivered the ventricular rate is synchronous with the auricular rate. In auricular flutter however, the ventricle is seldom able to keep pace and a varying grade of block is observed. As clinically observed, flutter is always of auricular origin since life would be impossible in ventricular flutter. If, then, the auricular rate be 280, the ventricular rate may be 140, a 2 to 1 block, or 70, a 4 to 1 block, or there may be complete dissociation.

Electrocardiogram: The rate of auricular contraction varies from 200' to 360 usually. The ventricular rate rarely keeps pace with the auricular rate even in the lower grades where the auricle contracts less than 200 per minute. Its onset is abrupt and it may disappear in the same spectacular fashion, but flutter usually lasts months or even years. Ordinarily the electrocardiograms are fairly easy of interpretation. The P and T waves may be alike in a given lead but they are never alike in all of the leads; they appear at uniform distances from the R waves in all leads and the deflections occur in orderly sequence. From this it must be concluded that these two waves have a common origin (Figure 7).

The complexes representing auricular con-

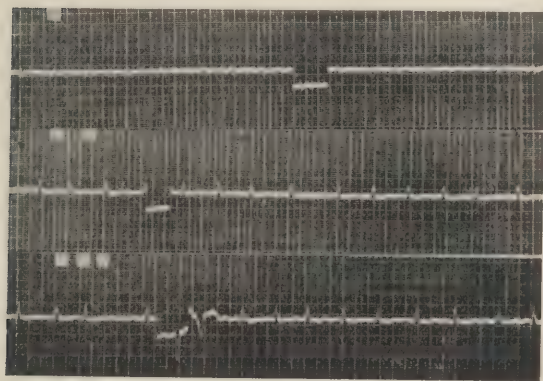


FIG. 7—Tracing showing auricular flutter in a heart with mitral stenosis. Ventricular rate is 100, while the Auricular rate is 300. All complexes are normal but of small amplitude.

tractions are contiguous and are traced as a wavy uniform line. Each of these waves represents a complete circuit of the contraction wave in the auricle. The interpretation of the gram in the lower grades of block is often difficult but as the higher grades ap-

pear the auricular waves are easier of identification.

An interesting phenomenon may be uncovered by pressure on the cervical portion of the vagi. By such pressure the ventricle may be slowed or even temporarily stopped,

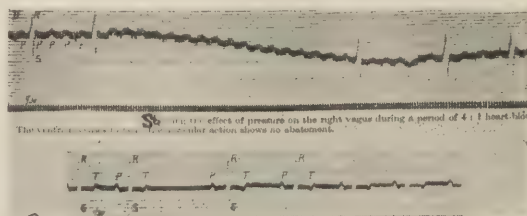


FIG. 8—Showing the effect of pressure on the right vagus during a period of 4:1 heart-block. The ventricle ceases to beat, the auricular action shows no abatement. Lower—From the same case after the heart's action had returned to the normal. Pressure on the vagus (right or left) now produced slowing of the whole heart. The left vagus was the one pressed upon in this instance. (Lewis.)

but the auricle continues to contract at its previous rate. Figure 8, taken from Lewis illustrates the effect of pressing on the carotid sheath during flutter and normal rhythm.

Figure 9, taken from Lewis, shows a flutter case that passed into heart block, then to fibrillation and finally to a normal rhythm except for an occasional premature ventricular contraction.

Clinical Consideration: While flutter is usually chronic and persistent it may occur as a temporary condition; for example, it may terminate in fibrillation, either spontaneously or as the result of digitalis administration. In either case the sequence is the same. Where the ventricular rate is equaling the auricular rate, a 2 to 1 block is established or if a 2 to 1 block exists it becomes a 4 to 1 block. During this transition the ventricular rate becomes irregular which is characteristic. The pulse rate is regular. It usually occurs in the elderly and males predominate in most series. While any valve lesion may be found coexisting yet usually the valve sounds are pure. Flutter should be suspected in any elderly patient with a pulse rate which ranges between 130 and 160 per minute, which is regular and persistent and which shows no change in rate by rest, exercise or postural change.

Syncope is common in these cases. Easy

fatigue and a sense of exhaustion are generally observed. There is, however, in many cases, a singular absence of striking symp-

process, such as pneumonia, is axiomatic. On the other hand flutter may be relieved and never return. Between these two extremes will be found cases that show periods of relief of variable duration and recurrence of the disorder.

Flutter cases present a rather large variety of phenomena and present a difficult diagnostic problem if unaided by instruments of precision. To achieve the fullest value of the knowledge such instruments have made available, it is desirable that the condition be recognized by the unaided senses. MacKenzie thinks it is comparatively easy to do so, and says "Auricular flutter can be recognized by the fact that if the pulse is in the neighborhood of 150 per minute and regular, no

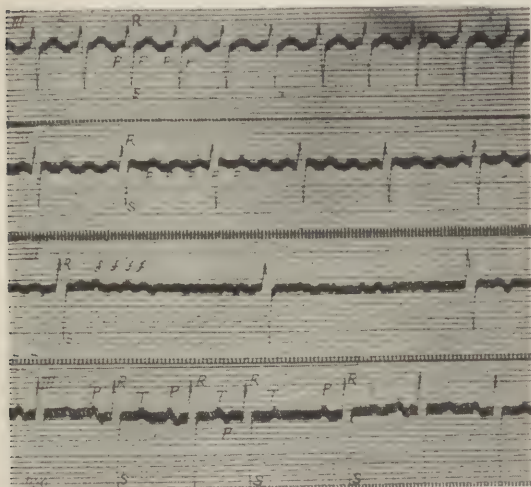


FIG. 9—Four curves from a case of long standing auricular flutter, showing the effects of treatment. The first curve shows an auricular rate of 300 and a ventricular rate of 150. In the second curve the auricular rate is maintained, but the ventricular rate has been halved (4:1 block is present) as a result of digitalis administration. In the third curve auricular fibrillation is seen and it is accompanied by a slow and irregular action of the ventricle. In the last curve the normal rhythm, interrupted by occasional premature contractions of auricular origin, has been restored.

toms and an unexpected freedom from clinical phenomena which would appear justified from the clinical signs when compared with other types of tachycardia. The less complete the accompanying block, the greater will be the evidences of failing circulation. If the ventricular contractions keep pace with the auricular the symptoms become severe, circulatory failure ensues, consciousness is lost and the life of the patient is in great jeopardy. In other words, flutter places a burden on the heart in proportion to the ventricular rate. It is in those cases with a heart muscle possessed of considerable reserve coupled with a slow ventricular rate that circulatory embarrassment is not in evidence.

How long a patient may live comfortably with flutter is not known. Certainly they have done so, for more than five years. That the condition constitutes a liability and may prove the determining factor for a fatal outcome in a surgical procedure, such as a prostatectomy, or in an acute infectious

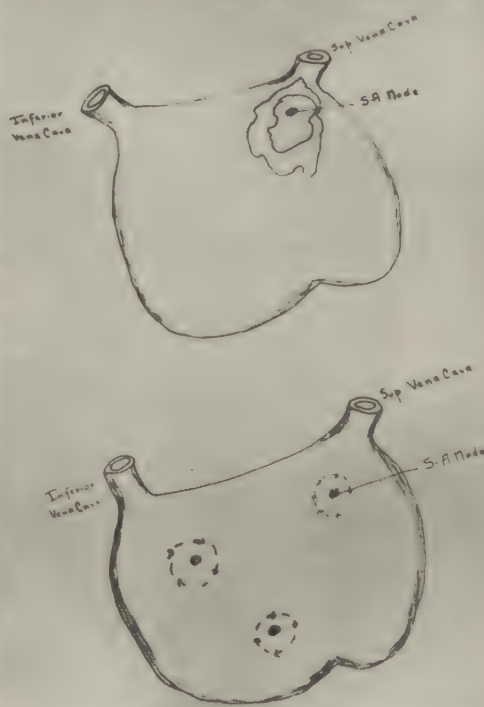


FIG. 10—The upper cut shows diagrammatically, the conception of abnormal revolving contraction waves each following an irregular but individual orbit. The lower cut presents a different conception of fibrillation based on the idea of functional fragmentation and multiple areas inaugurating impulses.

amount of effort will increase its rate—when the pulse rate falls below 150 and it at once becomes irregular, it is another evidence of auricular flutter."

Auricular fibrillation is a disorderly series of rapid contractions of the auricles

with rapid, arrhythmic responses of the ventricle.

Mechanism: Auricular fibrillation is, in reality, a form of auricular flutter but instead of one revolving impulse around the mouth of one of the vena cava as in flutter, there are a number of revolving impulses each completing its circuit independently and, perhaps, in variable time. Whether the contractions of these multiple centers of muscle activity are inaugurated by a single wave in the auricle which pursues an inconstant course, or whether there are incoordinated impulses each revolving about its own center is yet moot. But in either case there is in fibrillation no coordinate contraction of the auricles and instead small, multiple, twitchings or fibrillations, may be seen over the auricular muscle. These multiple impulses are showered on the auriculo-ventricular node in rapid and haphazard fashion; a few get through irregularly and ventricular contraction results but the vast majority reach the node when the ventricular muscle is either contracting or refractive.

course of abnormal revolving contraction waves each following an irregular and individual circle, hence, each requiring a variable but individual time for completion. The lower cut in Figure 10 shows another con-

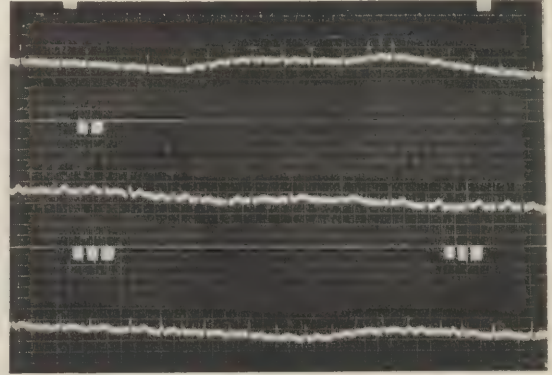


FIG. 12—3537—4-19-27. Heart Rate 120-160. Auricular Fibrillation. Considerable Muscle Tremor.

ception of fibrillation. This conception presupposes functional fragmentation of the auricular muscle with the result that a number of areas are inaugurating contraction impulses each revolving about its site or sites of origin, the waves travelling over the auricular muscle in much the same fashion as occurs in normal heart action to be garnered as the auriculo-ventricular node.

Electrocardiograms: If, and when, the ventricular contractions are due to delirious impulses from the auricle the ventricular complexes will be normal in outline. That means the Q R S and T waves will all be found in the electrocardiogram. The R wave may vary as to height and certainly will as to frequency. Figure 11 illustrates these points. The T wave may be inverted though the ventricular complexes of fibrillation are of the supra ventricular type. This, however, has no significance as it may occur after digitalis and is also found in tracings of normal hearts.

The other characteristic features of the grams are those connected with the auricular complexes. Since there is no contraction of the auricle as a whole, there can be no auricular representative in the electrocardiogram; one looks in vain for the P summit which normally precedes the R summit. Instead

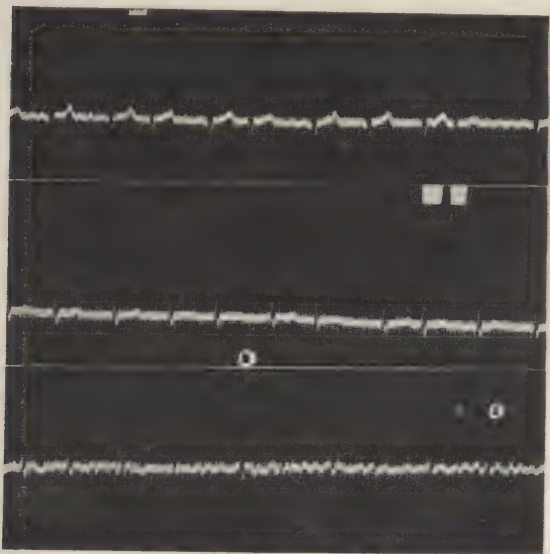


FIG 11—3675. 6-3-27. Heart Rate 100. Auricular Fibrillation. Intermediate Left Ventricular Preponderance.

This is fortunate, clinically, for the ventricle could not survive physiologically. The auricle is really in a state of delirium tremens.

The upper cut in Figure 10 is designed as an attempt to show, diagrammatically, the

there are found closely placed waves of an average frequency of 400 or more per minute. In the tracing in Figure 12 the auricular waves are rapid and irregular; there are no P waves and the ventricular complexes are irregular.

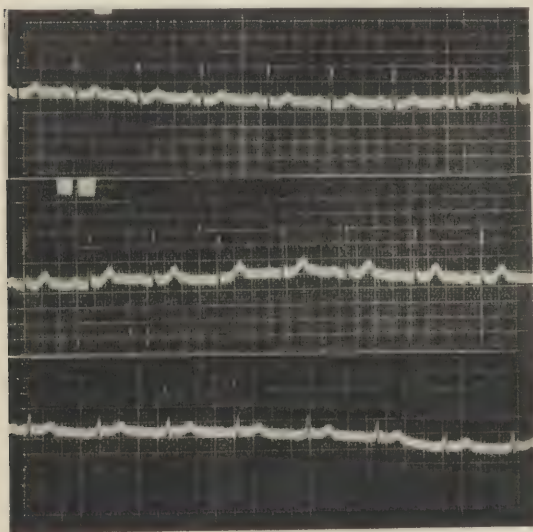


FIG. 13—3537—6-9-27. Heart Rate 81. Normal Electrocardiogram. Very little Muscle Tremor.

Figure 13 shows the same case under digitalis with a restoration to normal impulse control, P summits present and regular ventricular complexes. There is another type of waves not infrequently seen in fibrillation electrocardiograms, which are plainly shown in Figure 14. These are fine vibrations of the string due to tremor of skeletal muscles. While the gram in this figure was made on a case of fibrillation these oscillations are not of auricular origin, they continue throughout the curve and should be ignored in the interpretation; they are common in fibrillation cases but are found in other conditions.

An irregularly contracting ventricle has been insisted on as characteristic of fibrillation yet there will occur a slow ventricular response if heart block obtains. Such a block may be the result of digitalis as shown in Figure 15, or it may be the result of a lesion in the bundle of His.

Premature contractions are seen in fibrillation cases, (Figure 14). They are always of ventricular origin and are found most frequently in cases taking digitalis. Overdosage of digitalis may result in "coupling"

(Figure 16), and is a warning to diminish or discontinue its administration.

Fibrillation may reverse the usual order and revert to flutter when the ventricular rate is lowered to or near normal by a 2 to 1 or 4 to 1 block, supervening. This is actually what happens when Quinidine Sulphate is given. (Figure 17).

Clinical Considerations: A patient presenting a pulse rate over 120 per minute and irregular in sequence usually has an auricular fibrillation. If exercise increases the irregularity as well as the rate, it is almost certainly a fibrillation case. If the irregularity decreases subsequent to the exercise in a case also showing the two above mentioned peculiarities it is fibrillation. Fever usually increases the irregularity. As a fourth clinical feature, persistence is listed. Most of fibrillations persist until death. These four clinical findings enable one to determine the presence of fibrillation without the aid of the polygraph or electrocardiograph.

The other symptoms are mainly those of a failing and degenerated myocardium. These patients suffer shortness of breath, weakness and other evidences of over-taxation of the heart to a greater degree than do those with valvular lesions. They are usually conscious of the irregularity. The blood pressure falls

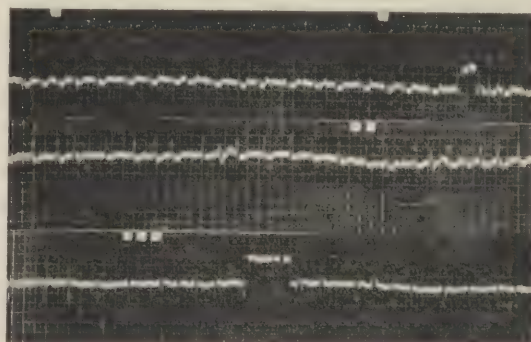


FIG. 14—3524—10-11-26. Heart Rate 150-160. Premature Ventricular Contraction. Marked Muscle Tremor. Auricular Fibrillation. (a) Irregular Ventricular Contraction. (b) Absence of P wave. (c) Variation in height in R wave.

at the onset of the condition but generally soon rises to its previous level. Breathlessness, precordial pain and cyanosis are evidences of a dilation of the heart. Venous engorgement, hepatic enlargement, dropsy, pulmonary edema and increase in heart vol-

ume, are evidences of myocardial failure, rather than the direct consequence of fibrillation.

The outlook in any case depends more on the degree of associated myocardial change, presence or absence of dilatation, renal lesions, etc., than upon the chronicity of the fibrillation. And yet it must be borne in mind that fibrillation is itself an evidence of serious muscular damage. The higher the persistent ventricular rate, the graver is the outlook. A rate over 120 is serious but a rate over 160 is fatal, eventually.

The transition in a discussion of auricular flutter and fibrillation to heart block is both logical and necessary as evidences of its occurrence are met in these conditions and have been referred to in their consideration.

The condition was called bradycardia in the earlier literature but was not seriously considered until just 100 years ago when Adams called attention to its coincident occurrence with attacks of unconsciousness and convulsive seizures; 19 years later Stokes amplified these observations and stated that with the slow pulse there seemed to be a lack of rhythm in the circulatory system. This group of symptoms has since been known as the Adam-Stokes syndrome.

The discovery that the vagus is a motor, inhibitory nerve of the heart by the Weber Brothers the year before Stokes' paper was published, however, led the physiologists to the erroneous conclusion that these slow pulse conditions were due to a lesion of the

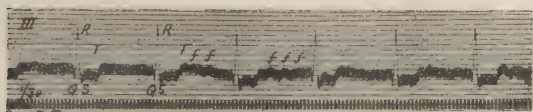


FIG. 15—From a case of auricular fibrillation, under treatment with digitalis. The fibrillation is evidenced by the oscillations f.f. and by the disappearance of P summits. The ventricular beats are placed regularly because complete heart-block was present. The rate is exceptional for a ventricular rhythm, being approximately 90 per minute.

medulla or the spinal cord.

This belief held for nearly a half century when the existence and function of the auriculo-ventricular bundle was established by Kent, Gaskell, His, Erlanger and Hering. Even then another decade and a half had to

pass before the pathological changes in the bundle became unanimously recognized as synonymous with the Adams-Stokes syndrome.

Figure 4 represents, diagrammatically, the present conception of the auriculo-ventric-

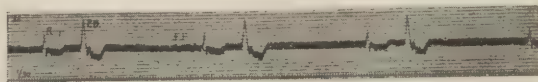


FIG. 16—From a case of auricular fibrillation on large doses of digitalis. It shows the coupling of ventricular beats which speaks of over-dosage. The first complex in each couple is of the supraventricular type; the second is of different form; these last contractions (P.B.) are premature and originate in the ventricle. The pauses succeeding the couples are of equal length; the drug has also produced complete heart-block in this instance.

ular conduction system as already explained.

Definition: With this conception of the physiology of the conduction of contraction impulses over the auricles and ventricles, heart block may be defined as a disorder of intracardiac conduction characterized by partial or complete delay or failure of the ventricles to respond to the auricular contraction waves.

Mechanism: Functional or organic impairment of the conducting neuro-muscular tissue between the auricles and ventricles will result in a derangement of the physiological sequence of impulses. The normal sequence of contractions of the upper and lower chambers is illustrated diagrammatically in the left side of the group of symbols in Figure 18. The upper heavy rectangles represent auricular and the lower ones the ventricular contractions; the thin oblique lines represent the systole intervals between auricle and ventricle activity and is called the A-V interval.

The earliest and simplest grade of block consisting of a prolongation of the A-V interval is illustrated by the right group of symbols in Figure 18. The thin lines become more oblique as the delay increases but the ventricle continues to respond. As the degree of block increases the ventricles begin to fail to respond to all of the auricular impulses; they are usually designated as "dropped beats," (Figure 19), a term having, unfortunately, less significance in doctors' minds than block. The next grade of

severity is reached when the block becomes a constant feature and usually bears some ratio, arithmetically, to the auricular beats, as a 2 to 1 or 3 to 1 or 4 to 1 block. Finally, a complete dissociation of auricle and ventricle activity may occur and each chamber

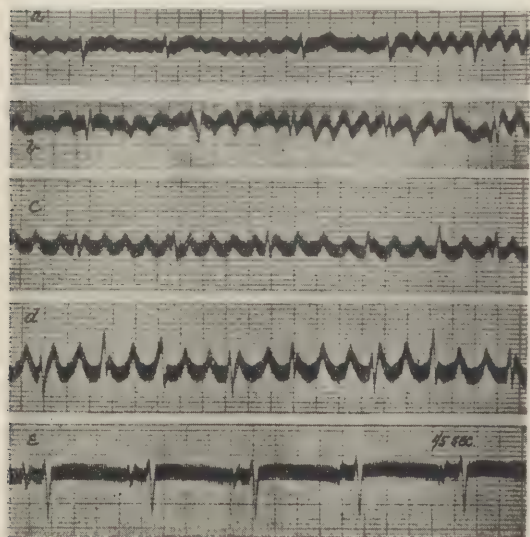


FIG. 17—Five curves taken from a pair of contacts arranged over the sternum in a case of auricular fibrillation. The time marker is in fifths of a second in all. (a) Before treatment; auricular oscillations at 450 per minute. (b) After 1 dose (approximately 5 grains) of quinidine, the oscillation rate has fallen to 350. (c) At the end of the first day's treatment, and after 3 doses of quinidine, the rate has fallen to 296. (d) At the end of the second day's treatment, and after 6 doses of quinidine, the rate has fallen to 247 and the oscillations have become almost regular. (e) Sixteen hours later, and after a final dose (the seventh) of quinidine, the normal rhythm has been resumed.

beat entirely independently of the other. This latter independent action is called "Complete Heart Block," (Figure 9) and is intended to convey the idea that no auricular impulses are carried over the bundle to the ventricle, while the term "partial" or better, "incomplete heart block" is used when some of the impulses are carried over the bundle.

Heart block may be further classified with reference to the anatomical location of the interference with the impulse passage:

(a) Sino-auricular block is not very well understood, it being even questioned if it has a pathological significance.

(b) Auriculo-ventricular block is of definite significance; it may be either incomplete or complete and implies a normal impulse birth at the sinus node, a normal conduction

of the impulse over the auricle but a sluggish or completely repressed passage at the Auriculo-ventricular bundle.

In complete heart block with an absolute dissociation between auricles and ventricles the inquiry naturally is, where do the ventricular impulses originate? Two facts become obvious on consideration of this phenomenon: (1) The ventricles would cease to beat were there not a new center of origination of impulses and, (2) this new center is situated above the bifurcation of the bundle. If the latter were not true the ventricular complexes in the electrocardiogram would show a definite difference from their normal shape. If the former be true does this automatic ventricular center remain dormant so long as complete block does not obtain or does it function in a normal heart action? Kent has described a bridge of muscle tissue connecting a mass of nodal tissue in the wall of the right auricle with the ventricles. He thinks that where the bundle of His is destroyed this bridge may conduct impulses to the ventricles.

Williams and James showed, by electrocardiograph tracings, that the ventricles may contract before the auricles thus reversing the normal cardiac sequence of auricular-ventricular contraction. In such a condition the contraction impulse travels up the bundle instead of down as normally and would

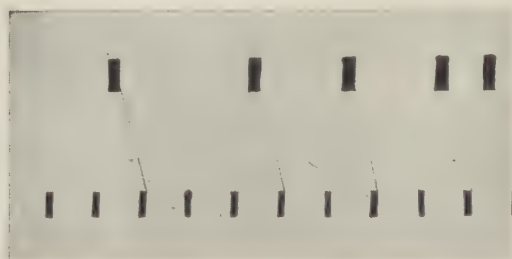


FIG. 18—A diagram showing normal conduction of a 2 to 1 and a 4 to 1 Heart Block. The upper rectangles represent Auricular and the lower rectangles Ventricular Contractions. The thin connecting line represents the A-V interval. Note the greater obliquity of the A-S line as Block increases.

seem to establish the existence of some sort of ventricular center for impulse generation.

Another interesting question is, what becomes of the auricular waves after they reach the auriculo-ventricular node in block cases? These are some of the many unsolved prob-

lems in cardiography. And lastly, there is what is called "Bundle Branch Block" which indicates that there is an interference in the passage of the contraction impulse in one or the other of the branches after the bundle has divided. Figure 20 is an electrocardiogram showing defective conduction over the right branch of the bundle. In such a case the ventricular complex is largely or entirely due to contraction of the left ventricle, and is referred to as left ventricular preponderance.

Causal Conditions in Relation to Block: In the majority of cases of block the auriculo-ventricular node or the bundle of His is the seat of the disability. A fibrosis is the most common lesion. Luetic gumma or sclerosis comes next in frequency. Vaquez thinks that syphilis causes nearly one-half of bradycardias from disorders of conduction which term he prefers to heart block. Fatty degeneration may cause block; here the lesion may be either a mere separation of the fibres of the bundle by fat cells or an actual steatosis of the fibers. Tumors have been found post mortem. Inflammatory changes from infectious diseases as diphtheria, typhoid, rheumatism or a subacute bacterial endocarditis and a chronic degenerative change in common with similar involvement of the heart muscle furnish the cause in other cases.

of block. Icterus, uremia, digitalis and nicotine are examples, some of which, as digitalis, are not infrequent.

Clinical Consideration: Heart Block may occur at any age; when it appears at birth it is congenital. Males furnish a majority

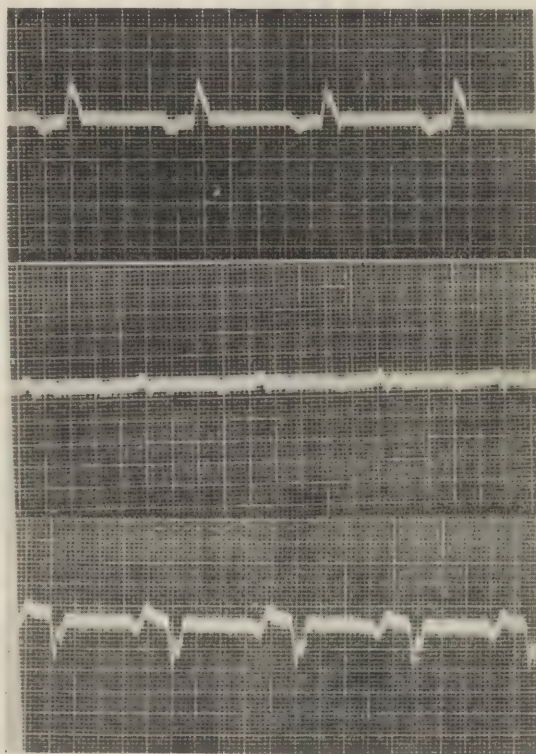


FIG. 20—Case H 3675. Complete Bundle Branch Block. Heart Rate 64. Q R S widened and notched.

of the cases. It may occur without previous clinical disturbances or it may be the terminal phenomena of auricular flutter or fibrillation. A diagnosed valvular lesion may on failure of compensation end as partial or complete block.

A slow pulse is the most constant symptom. Any case with a pulse rate of 50 or less should be studied carefully for block. A fall in pulse rate is not an uncommon event during the convalescence from diphtheria or typhoid or rheumatism. Prior to the use of instruments of precision these cases were all thought to be due to a simple bradycardia the result of the effects of toxins on the nervous mechanism. The toxemia is the cause but it is a saturation of the neuro-muscular tissue of the nodes and auriculo-ventricular bundle and polygraphic and electrocardio-

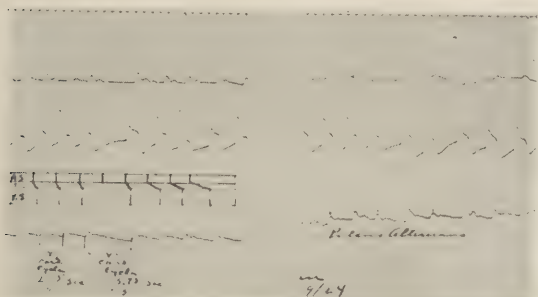


FIG. 19—2860—11-29-24. Polygraphic Tracing showing Nodal Arrhythmia, Pulsus Alternans depressed conductivity with drop beats. T wave absent. Cardiac cycle. 2.75/5 to 5.75/5. Rate 120.

Emboli and endarteritis explain still others. Even aneurysm has been found to be a cause. Malformation may explain those cases classed as congenital though this is disputed by Meyer.

Intoxications of various origin are produc-

graphic tracings show many of them to be some form of disorder of conduction. The block may persist or it may disappear permanently or temporarily, either spontaneously or as the result of treatment. Such cases presenting successive periods of block and sinus rhythm have been designated, "habitual," while certain others which appear on assuming an erect position are designated as "orthostatic" block.

A characteristic of this slow pulse is its persistence under fire of such agencies as usually accelerate a pulse. Fever, emotion, exercise, drugs, alike have little or no effect on the pulse rate. Vaquez first called attention to this peculiarity in 1889. Based on this invariability of pulse rate a number of tests have been proposed as a means of diagnosis of the existence of heart block. Atropine given to a healthy patient will usually increase the pulse rate from 20 to 40 per minute; in heart block the ventricular rate will not be altered or but slightly accelerated, but the auricles during such a test will show an increase equal to or greater than the result noted on healthy hearts. Amyl nitrite inhalation yields similar results to atropine but does so instantaneously.

Functional murmurs are rather frequently heard in block. They are usually heard at the apex. They are explained on the basis of an incomplete closure of the mitral valve because in block the ventricular contraction is not immediately preceded by contraction of the auricle.

A new sound may be heard in heart block caused by auricular contractions. When a heart is functioning normally the contraction of the auricles is inaudible, but when the auricular systole is widely spaced from the ventricular systole, the former may be heard as a distinct but muffled sound. This sound may appear as a reduplication of the first heart sound when the A-V interval is only moderately widened and as a double second sound when more widely spaced.

There is another peculiarity in the heart sounds occurring in mitral stenosis with block; when in such a case there is found a regular slow pulse with a murmur or an apical thrill occurring in early diastole

an early heart block should be suspected. Dropped beats, occurring singly with no sound over the apex during a pause of unusual length and not regularly associated with expiration, are attributable to block. A sudden or exact halving of pulse beats resulting in a regular rate of 50 or less is indicative of block.

Small, regular pulsation of cervical veins with an occasional accentuated pulsation accompanied by an exaggerated first heart sound is also very suggestive of block. Some degree of hypertrophy of the ventricles ensues in chronic block and should be looked for; an increased systolic blood pressure is likewise to be expected.

Finally, in the higher grades of block the occurrence of Stokes-Adams syndrome indicates a graver disorder of nutrition. When the ventricular rate falls to 20 or less unconsciousness results; a period of asystole of more than four seconds will produce unconsciousness also. Preceding the loss of consciousness there is often vertigo, the patient is pulseless and pallor is observed, the pallor changes to cyanosis, the respiration becomes audible even stertorous and twitching of the face and extremities occurs. During this mild convulsion there is rarely involuntary urination, defecation or biting of the tongue. There is no aura as in epilepsy. It will be observed that there may be either a syncopal attack or an epileptiform convulsion. It must also be emphasized that every case of heart block does not present the Stokes-Adams syndrome. In fact, it is the minority that do present it.

Significance of Heart Block: The period of expectancy of any given case of block is not determined by the disturbed mechanism designated as block so much as by the associated myocardial changes in addition to the bundle pathology. Many cases due to acute intoxications recover; in those incident to rheumatism or syphilis the block is often the least prominent and sometimes the least important manifestation. Death may occur during a convulsion in the graver types of block and yet it must be emphasized that the Stokes-Adams syndrome occurs more frequently in cases of partial than in complete

block. The period of greatest danger occurs during the transition from one type of block to another. In other words, it may be said in summation, that heart block complicates the picture and makes graver the prognosis of the co-existent myocardial lesion. True congenital total bradycardia is scarcely more than a medical curiosity as it causes neither symptoms nor death. It should not be considered a disease.

Clinically pulsus alternans is a regular alternation in force of cardiac contractions, a weak beat followed by a strong one.

Electrocardiograms: Definite existence of pulsus alternans may be shown in electrocardiograms but most cases are unsatisfactorily uncovered by such study. When shown it consists of alternate variation in height of the R waves. The most striking instrumental curve that is shown in polygraphic tracings of either vein or artery. On these the weak beats are not always regularly spaced, being often nearer the strong beat that follows, than the one preceding it. Tracings made over the heart, strange as it appears, usually show the waves at regular intervals, thus making it appear that the phenomenon of pulsus alternans is a peripheral tone.

Mechanism: A number of hypotheses have been offered to explain pulsus alternans, some illogical, other ingenuous and a few deserving of consideration. That which appears most satisfactory is based on the recognition of a refractory phase of myocardial fibres after contraction. Normally, after systole the fibres become refractory for the period covered by diastole which disappears by the time of the arrival of the next normal contraction stimulus on which contraction again occurs. In an alternating pulse some of the ventricular fibres are weakened and they recover from the refractory phase more slowly than the remainder of the heart. Only the normal fibres contract with the arrival of each stimulus, hence a weaker beat than the following one when the damaged fibres have become stimulus-ready and all the muscle contracts. In other words the refractory phase of a part of the heart muscle fibres is lengthened to such extent they cannot con-

tract with each advent of the stimulus, some of the muscle fibres are, therefore, in diastole each alternate contraction, accumulating sufficient energy to contract, however, with every other systole. This condition may be induced by inadequate blood supply, by toxins or fatigue. It is usually indicative of myocardial weakness. High tension cases also show it. Arterio-sclerotic changes in the heart muscle frequently present is as a feature.

Clinical Considerations: While alternation of the pulse may occur as a transient condition it is usually persistent. Traube insisted that such persistence is an essential feature. The condition may be induced by certain drugs. It can be produced experimentally, by glyoxylic acid but in such a case is wholly cardiac, the peripheral circulation not involved and, hence is atypical. Digitalis may cause alternation as shown by its disappearance when the drug is discontinued. Some clinicians recognizing this, hold that digitalis is contraindicated in true typical pulsus alternans.

Atypical or transient alternation may also be observed in a case showing premature contractions. In such a case the alternation follows the so-called extra systole arrhythmia. It consists here in a lowering of the amplitude of the beats which gradually increase until the normal height is reached rather than an alternate weak and strong beat with irregular spacing.

In respiratory arrhythmia there may also occur a pseudo-alternation but this can be easily recognized by the observation that the weak beats coincide with inspiration and disappear on holding the breath. True alternation continues during the period of holding the breath.

A bigeminal pulse may be confused with a pulsus alternans, in fact, it may resemble it closely. It may be differentiated by noting the effect of exercise which induces a variation in bigeminy whereas, in a true alternating pulse no change is observed. An additional sound is heard over the heart synchronous with the extra beat and a definite increase in the tone of the beat which follows.

The electrocardiogram is of service here as

a means of differentiating; the ventricular complex is normal in pulsus alternans and atypical in bigeminy. Alternation can rarely be discovered by palpation of the radial pulse, and if it is so found there always exists an advanced stage of myocardial weakness. It may be discovered with the ordinary blood pressure instrument. The pulse can be cut in half on raising the pressure in such a case. It cannot be diagnosed when fibrillation exists but there is a tendency for it to appear following premature contractions for a few beats. While it is usually evidence of an exhausted heart muscle and of ominous import, there is one condition in which it may occur where the future is brighter. A paroxysmal tachycardia of several days' duration may exhibit a temporary alternation due to fatigue. Alternation in such a case carries the prognosis of the paroxysmal tachycardia only.

No symptoms are observed which are due to alternation alone. If pain occurs, angina must be suspected; if dyspnea is observed, a fibrotic or fatty myocardium is responsible; in the elderly, hypertension spells sclerotic changes or renal disease. It must be emphasized that persistent, true alternation is now being referred to.

Finally, it may be said that its presence means an excessive burden is being carried by a fairly good heart or that a crippled heart is staggering under even a physiological load.

REFERENCES

- Adams: Irregularity of breathing and remarkable slowness of the pulse. *Dublin Hospital. Rep.* 4:396, 1827.
- Anderson: Auricular Fibrillation Associated with Hyperthyroidism. *J. P. J. A. Med. Sc. Vol. CLXXIII*, No. 6, P. 788, June, 1927.
- Ashton; Norris; & Lavensen: Adams-Stokes Disease due to gumma in the interventricular Septum. *Am. J. M. Sc.* 133, 28, 1907.
- Blackford & Williams: Auricular flutter. *Arch. Int. Med.* 21: 1918.
- Brown: Paroxysmal tachycardia in childhood. *Am. J. Dis. Chil.* 14:287, 1917.
- Brownwell: Case of Heart Block; slow pulse; fibrous degeneration of the Auriculo-Ventricular Bundle of His. *Clin. Studies, Edinburg*, 8: 84, 1909-10.
- Butler: Heart Block. *Am. J. Med. Sc.* 133:715, 1907.
- Cervan, McLeod & Patterson: A case of partial heart block occurring during an attack of acute Rheumatism. *Quart. J. Med.* 3:115, 1909-10.
- Chaplin: Clinical Observations upon the Heart and Circulation in Diphtheria. *Med. Rec.* 53:77, 18, 98.
- Colgate & McCullough: Paroxysmal Tachycardia

in Infancy. *The American Heart Journal. Vol. 11*, 2202, P. 160, Dec. 1926.

Cushing: Irregularities of the Heart and Auricular Fibrillation. *Am. J. M. Sc.* 141:826, 1911.

DeCosta: Physical Diagnosis, 4th Ed. Saunders Co., P. 316-506.

Erlanger & Blackman: Further Studies in the Physiology of Heart Block in Mammals. *Heart*, 1:177, 1909-10.

Eyster & Fahr: Observations on the use of Quinidine in Auricular Fibrillation. *Arch. Int. Med.* XXX, 133, 1922.

Gibson: Heart Block, *Brit. Med. J.* 2:113, 1906.

Graves: On the Effects produced by posture in the frequency and character of the pulse in health and disease. *Dub. Hosp. Rep.* 5:561, 1830.

Hewlett: Digitalis Heart Block, *J. A. M. A.*, 48:47, 1907.

Hewlett: The Blocking of Auricular Extra Systoles. *J. A. M. A.* 48:1597, 1907.

Jolly & Ritchie: Auricular Flutter. *Heart* 4: 171, 1912-13.

Kent: Researches on the Structure and Function of the Mammalian Heart. *Jr. Phys.* 14:233, 1893.

Koplik: Paroxysmal Tachycardia in Children. *Am. Jr. Med. Sc.* 154:834, 1917.

Krumhaar: Adams-Stokes Syndrome, with Complete Heart Block, without destruction of the Bundle of His. *Arch. Int. Med.* 5:583, 1910.

Lambert: Practice of Medicine. (Tice) Pryor & Co. Vol. VI. P. 281.

Levine: Auricular Fibrillation: Some Clinical Considerations. *Amer. Jr. Med. Sc.* CLIV 43, 1917.

Lewis, Druery; Isben & Webb: *Heart*, VII, 127, 791, 247, 293, 1918-20; VIII, 37, 87, 141, 171, 193, 341, 361, 1921.

Lewis: Auricular Fibrillation and its relationship to clinical Irregularity of the Heart. *Heart*, 1:306, 1909-10.

Lewis: Auricular Flutter. *Heart*, 4:171, 1912-13.

Lewis: Clinical Electrocardiography. 3rd Ed. 1924.

Lewis: Clinical Disorders of the Heart Beat. 1915.

Lewis & Schleiter: The relation of regular Tachycardia of Auricular origin and Auricular Fibrillation. *Heart* 3:173, 1911-12.

MacKenzie: Diseases of the Heart. Linden. 1918.

MacKenzie: Pulsus Alternans. (P. 291) *Heart* 2:273, 1910-11.

Newhoff: Clinical Significance of abnormally wide ventricular Deviation in Electrocardiogram. *Arch. Int. Med.* XXII, 45, 1918.

Oppenheimer & Rothschild: Electrocardiographic Changes Associated with Myocardial Involvement with especial reference to Prognosis. *J. A. M. A.* LXIX, 429, 1917.

Robinson: The Significance of Abnormalities in Form of Electrocardiograms. *Arch. Int. Med.* XXIV, 422, 1919.

Russell-Wells & Wiltshire: Case of Intermittent Complete Heart Block observed for twelve years. *Lancet*, 1:984, 1922.

Smith, C.: Observations on the Heart in Diphtheria. *J. A. M. A.* 77:765, 1921.

Sterling: Heart Block influenced by the Vagus. *Heart*, 8:31, 1921.

Vaquez: Diseases of the Heart. 1925 (Trans.)

Wilson & Hermann: Bundle Branch Block and Arborization Block. *Arch. Int. Med.* XXVI 153, 1920.

Windle: Observations on Pulsus Alternans, *Heart* 2:95, 1910. Observations on the relationship of the heart beat to pulsus alternans, *Quart. J. Med.* 4:453, 1910-11.

The incidence and prognostic value of the pulsus alternans in myocardial and arterial diseases, *ibid.* 6:453, 1912-13.

A METHOD FOR TREATING NEURAL SYPHILIS *

By CURRAN POPE, M. D.
Louisville, Ky.

NEURAL SYPHILIS may be a trite subject, but when a disease, so crippling, so difficult to handle, resists ordinary and extraordinary treatment, then any method that gives promise of aiding, even if in small degree, becomes worthy of a hearing and a trial.

Probably from fifteen to twenty million people in the United States suffer from lues, many of whom do not know that they have it. Neural syphilis is extremely common. There are probably from one and a half to two million people affected by this form of syphilis. Nothing is more difficult to treat than lues of the brain, spinal cord, and nerve roots. Syphilis may scourge the entire body, but it reaches its maximum in its attack upon the central nervous system. It may be cured. Of this, there is never any certainty. The uncertainty is so great that we may with a large modicum of truth proclaim that syphilis never dies, it sleeps. Antisyphilitic chemical remedies, mercury, arsenic, and bismuth are all heavy metals with large molecules, that have difficulty in penetrating the nervous tissue. It therefore becomes extremely important to utilize any remedies or a combination of remedies that not only will render the central nervous system more susceptible to the action of medicaments, but will facilitate their entrance into the cloistered structures of the central nervous system.

The following system has proved so satisfactory in a large number of cases that it is put forward as a method of reaching these most difficult diseases. It is but a combination of old methods, well known and tried, arranged in a sequence which is highly important. This sequence of treatment seems to open the nervous system to the action of specific drugs.

Treatment of syphilis, and of neural syphilis in particular, is not by any means

confined to chemotherapy. This narrow and limited view is the physician's undoing oftentimes. Per contra, I do not believe that any case of syphilis can be properly handled without chemicals. It is the intelligent combination of all known measures that often gives brilliant results in cases that appear almost hopeless, particularly where the patient is treated and not the syphilis alone.

The increase of resistance, the relief of focal infection, the change of psychic attitude, all count in these cases. The essentials of this treatment are:

(1) Proper diet, rest, and the administration by mouth of tonics, digestants, or other medication as demanded.

(2) Fresh air and reasonable exercise in ambulant patients and the Frankel method of re-education in those that demand its use.

(3) Hydrotherapy daily.

(4) Diathermy and galvanism daily.

(5) Administration of mercury and bismuth hypodermically.

(6) Administration of dextrose intravenously.

(7) The use of the arsenicals intravenously.

(8) Adjuvant measures such as ultra-violet radiation, static electricity, etc.

Metabolism. The maintenance of nutrition is a most important feature. As many of these cases are anemic and cachectic, they demand not only food but tonics that stimulate vitamin activity. Iodine and cod-liver oil, in conjunction with fresh air, reasonable exercise, and the rays of the mercury arc lamp several times a week, will materially aid in the reconstruction of the metabolism of the patient.

Hydrotherapy. One could well spend the entire time at his disposal upon the value of hydrotherapy in the treatment of lues. Although it has no direct specific or anti-specific value, the power of hot and cold

* Read before the West Virginia State Medical Association at White Sulphur Springs, June 22, 1927.

applications to regenerate, to stimulate all the functions and muscular power, is the daily observation of those who use hydrotherapy constantly and depend upon it for results that it rarely fails to attain.

Diathermy. The medical profession has for many decades recognized the curative value of heat. The febrile manifestation of an infection creating heat within the tissues of the body limits and eventually destroys the infection. In like manner diathermy is the production of heat within the tissues themselves. Following the publication by Dr Kraft and Titus of their use of diathermy and galvanism a number of years ago, I have used this method very extensively in the treatment of disturbances of the central nervous system and the diseases and disorders of internal medicine. I have found diathermy of particular and peculiar value as a measure capable of preparing and, as it were, sensitizing the brain and nervous system to the action of the galvanic current. I use much larger doses (300 to 500 or 600 milliamperes), than these gentlemen suggested, a longer treatment (ten to fifteen minutes), and my not inconsiderable experience has justified me in this confidence. in Galvanism. Preceded by diathermy galvanism is very much more efficient than when used alone. I have from a wide clinical experience definitely settled the rule that the negative pole should be placed as near as possible to the site of the lesion. The reason for this probably is that there is a greater flow of blood in this direction, the tissues are rendered softer and more succulent, and there is increased secretion. From the clinical results obtained, no matter what may be the theories underlying their action, it remains a fact that, where these currents are applied in sufficient length of time, the chemotherapy of syphilis, especially of the central nervous system, is greatly enhanced.

The static current as an adjuvant may be employed in the form of direct or indirect heavy sparks to spine and extremities, followed by the wave current, preferably using two very large Leyden jar condensers, connected externally to obtain the heaviest spark and the most pronounced vibratory

wave. It may be used to relieve pains, for anesthesia, and for its deep decongesting effect. In cases that are markedly run down we may employ the mercury arc rays twice or three times weekly.

Dextrose. Sugar ($C_6H_{12}O_6$) solutions were employed in intravenous therapy by Budingen. His observations were soon confirmed by others. So far as I know, Herb was the first in this country to call attention to the value of these solutions in the treatment of acute general syphilis. He advances as the reason for the failure of remedies to reach the tissues and hence the treponemata the fact that these tissues are edematous. In such tissues these organisms remain alive and multiply undisturbed, while the edema acts as a mechanical barrier against absorption of remedies directed against the organisms. He points out that wherever microbes settle split products form and accumulate in the surrounding fluid. "Whether these split products originate from the host's own tissues in consequence of the destruction wrought by the microbes, or from the disintegration of the dead microbes themselves, they destroy or fix a complement. Complement, without which ferments cannot work, is fixed at the very outskirts of these zones, so that ferments, should they reach the treponemata, are not activated and remain perfectly harmless to the enemy. Such edematous zones I have designated 'zones of inhibition.' When fully developed they constitute a veritable fortress from which the treponemata cannot be dislodged, either by the defensive mechanism of the body or by the ordinary treatment, even if it is persistent and intensive."

To reach these microbes and to make them accessible to our remedies we must first drain the edematous fluid and destroy the fortress. Victor C. Vaughan found that all products formed during the disintegration or splitting of protein were acid in reaction. Thus a tissue acidosis is produced. Martin H. Fischer laid the foundation for the understanding of this problem, when he showed that this local acidosis caused the tissues to swell, infiltrate, and gradually develop into "zones of inhibition." Herb comes to the conclusions that from a thera-

peutic standpoint the active reactions of the tissues to a leutic infection are first cellular and that in this reaction nature is capable of handling the invasion and the tissue usually frees itself; and second, there is a sphere of noncellular reaction accompanied by localized acidosis, edema, and the protection of the growing treponemata by the edematous wall. To reach them we must first drain away the edema. This is done by the hypertonic dextrose solution. Herb states that it is undetermined whether it is best to administer the sugar before or after the nearsphenamine. From clinical study I feel satisfied that the sugar solution should be administered first and that an appreciable interval should elapse before giving the arsenical. Furthermore, the use of heat by diathermy, the use of galvanism with its chemical influences as direct as possible to the affected area, seem to render the inaccessible tissues of the central nervous system more capable of access to the chemicals administered, that is to say the treponemacides.

Early in morning administer twenty to forty cubic centimetres of sterile dextrose solution. Allow several hours to intervene and on an empty stomach administer the salvarsan or neosalvarsan intravenously. Immediately following the last intraveous administration give diathermy to the brain or cord, depending upon the localization of the disease, dose 300 to 600 milliamperes for five to fifteen minutes, following this with galvanism. The latter is applied to the same portions or all of the central nervous system, dosage ten to fifteen milliamperes for five to ten minutes, placing the active negative electrode as near the site of the lesion as possible and the positive indifferent electrode in such a position that the current will as nearly as possible pass directly through the involved tissues. On four days of the week the diathermy and galvanism are to be given without the glucose or salvarsans.

CHEMOTHERAPY

The writer does not believe that any form of treatment is of value unless the so-called specifics against syphilis are employed. In

a great many instances their use alone, intensively backed by intelligent guidance, will bring about a control of the disease and a relief of its symptom pathology. Three remedies have been used in the chemical treatment of lues in this scheme. They are mercury, bismuth, and arsenic.

Mercury. The writer is still of the opinion that mercury is the sheet anchor in every form of syphilis. It has long held its place as a treponemacide, and in his humble opinion it is not likely to be finally displaced. He employs various forms of mercury depending upon the case. The red iodide of mercury has proved to be a most satisfactory mercurial, used in gradually increasing doses and pushed to its physiological limit.

Bismuth. A number of preparations are on the market, but the writer prefers a soluble or colloidal preparation of bismuth. These preparations seem to be more effective, less painful, and more easily handled. Bismuth has a rather slow but powerful action, tending to cicatrize lesions and heal them rapidly. It is especially valuable in neural syphilis and should be the drug of selection in headaches, convulsions, and neurosyphilitic pains and acute meningitis. Wassermann fast cases that have been treated extensively with arsenic and mercury oftentimes yield nicely on the addition of bismuth to the treatment. It seems to be especially valuable in latent lues andluetism, particularly if these cases have had previous intensive treatment with arsenic and mercury, especially in relieving the pains, and while it is much slower in action than arsenic and mercury, both clinically and serologically, once it takes effect its action is more prolonged and serological tests seem to indicate that negatives are obtained for a longer time. It may be used with the salvarsans.

Arsenic. The various forms of salvarsan or arsphenamine should always be employed with care and caution in the treatment of neutral syphilis. It is my opinion that the cases under consideration are more subject to reactions than the general run of leutics. It has also been my observation that, if results can be obtained with smaller doses

of salvarsans and with larger doses of mercury and bismuth, the beneficial results last longer and are more pronounced. We usually follow the plan in my clinic and hospital of injecting very slowly, thereby gradually mixing the arsenic with the blood, believing that in this way better results will be obtained. The patient should rest for a short while after receiving the intravenous administration and should take no food for at least two to three hours. While we employ gradually increasing doses, till we have found that in this method of treatment, where very large doses more frequently repeated have failed, smaller doses less frequently given have proved most effective when used with the physical measures suggested. One cannot be too careful however in neural cases in the administration of this treatment, especially where the trouble is accompanied by recent paralytic symptoms, convulsions, and very high blood pressure. It will be found that considerable judgment is required in the adaption of this method to the individual patient.

Wherever syphilis involves the nervous system it is a serious matter. As soon as

this takes place its management to a successful termination is not simply a question of antileptic treatment, such as is usually administered in the primary and secondary stages of the disease. When we recall that at least twenty-five per cent of all the cases having primary syphilis are said to involve the central nervous system; and that during the secondary period fifty per cent show some involvement of the optic and auditory nerves that may be transitory or permanent; and that from seventy to eighty-two per cent of patients with early syphilitic lesions show spinal fluid changes; and that state hospital records show one out of every six patients admitted as insane, owing their mental disease directly to syphilitic involvement of the central nervous system, it behooves us to pay extremely close attention to the treatment or management of this protein disease. Furthermore, when we stop and reflect that later along a great number of these cases will be mistreated and mishandled as "neurasthenics" until irreparable damage has been done, there is a further incentive to correction and proper management of this type of case.

BONE GRAFT SURGERY *

By J. O. RANKIN, M. D.

Surgical Division of Wheeling Clinic.

Wheeling, W. Va.

THE development and adaptation of the principles of bone graft surgery is a very interesting chapter in the history of surgery.

The larger part of the literature published since 1910 has been contributed by such masters as Albee, McWilliams, Phemister, MacEwen, Haas, Ollier, Brown and Brown, Gallie, Robertson, Baschinzew, Petrow and Campbell.

The basic principles have been given to us by the centuries old art of grafting in the vegetable kingdom. These fundamental rules must be strictly adhered to in the

animal kingdom if the clinical success desired is to be attained.

First came numerous theories as to how and why transplanted bone grew. Following closely came many conflicting reports of scientific experiments. As time progressed the views of the different research students became more nearly reconciled, so that now our ideas in regard to the fate of the graft and the formation of new bone are quite definitely crystalized into two theories.

The first theory assumes that the transplant lives and becomes an integral part of the skeletal system, while the second considers the transplant as simply a framework through which new bone is substituted. Most

* Read before the sixtieth annual meeting of the West Virginia State Medical Association, at White Sulphur Springs, June 22, 1927.

writers are inclined to accept the latter hypothesis.

A few days after grafting all the cells and vessels of the graft coagulate except those in contact with the lymph of the tissues surrounding the host. On the surface of the graft and graft bed are the osteoclasts which, fed by the lymph, proceed to excavate this dead bone. Around the edges of these excavations are proliferating cells or older osteoblasts, which later lay down new bone.

At the same time this work is progressing, new blood vessels are rapidly proliferating through the Haversian canals. The osteoblasts then quickly follow these tracts and burrow off at every angle into the dead bone. In a miraculously short time the whole graft is undermined by these excavations which in turn are filled with new bone by the older osteoblasts, which have now changed their function to that of bone formation. Hence an autogenous bone graft lives only by virtue of the osteoblasts that are free on its surface and in the mouths of Haversian canals. The rest of the bone dies and is absorbed. It is useful only as a framework for the formation of new bone by the osteoblasts which invade it from its own surface and from the neighboring bone.

The bone graft should be constituted of all the layers of a bone, namely: periosteum, cortex, endosteum and marrow. The majority of the osteoblasts are found in the periosteum, the subperiosteal space, and in the endosteum.

Hass² found that if both the periosteum and endosteum are removed, no bone regeneration occurs. If either is removed, delayed union results. Of the two the periosteum is the more active. This study was substantiated by Phemister³ and Auxhausen. They both felt that the cortex plays a minor role because it is unable to get sufficient nutrition on account of the denseness of its structure.

Gallie⁴, Graves⁵, and Albee⁶ did not corroborate this view. Baschinzew⁷ and Petrow believe the periosteum is of value, not because of osteogenesis but because it aids

in directing and protecting the growth of fibrous tissue.

Campbell⁸ has made some very interesting observations which I would like to mention:

I. "In adolescence and young adults, grafts are more vigorous and apparently act as a living integral part, showing no disintegration but a gradual increase in size and thickness."

This observation has been substantiated by the author in following up his personal cases with frequent radiograms.

II. "Every evidence indicates the inlay as the physiologic method. The intramedullary should not be employed when osteogenesis is feeble."

III. "Spinal grafts in young children and adults probably are absorbed."

IV. "From the X-ray in a few cases bone appears to form in strata about the original graft as involucrum about a sequestrum."

Passing from the histology it will be interesting to note briefly the types of bone graft used.

1. The Inlay Graft.

This type is probably used more than any other. It⁹ satisfies important biologic, physiologic and mechanical laws which have proved essential in carrying out the same kind of procedure in the vegetable kingdom.

It gives close apposition of the corresponding layers of graft and host. By the exact fitting of the graft it affords a very potent internal fixation. It is very conducive to rapid osteogenesis.

2. The Sliding Inlay Graft.

While being very useful, this type does not give as good results as the inlay, especially in the radius or ulna. Because of osteoporosis from disuse the graft is very prone to break.

3. Intramedullary Graft.

The most satisfactory field for this type of graft is found in its use as a fixation agent in fractures of the larger bones.

In fractures of the small bones it is unsatisfactory on account of the difficulty of insertion. The various layers of graft and host are not brought in apposition, and con-

sequently conditions for proliferation of blood vessels from host to graft are unfavorable. Furthermore the marrow of the host must be sacrificed for the insertion of the graft.

4. Osteo-periosteal Graft.

This type is valuable where fixation does not depend on the graft. A large area of cancellous bone and endosteum rich in osteoblasts is brought in contact with a corresponding area on the host. Hence it is very conducive to rapid osteogenesis.

5. Pedicle Graft.

This type is used very little except in fractures of the lower jaw without loss of substance.

6. Bone Pegs.

These small grafts are often useful in fractures of the fingers, especially when used to act as an internal fixation agent.

7. Bone Bridge.

This method of grafting is used only where there is a complete loss of substance or congenital absence.

8. Bone Slivers.

These small chips or slivers when placed around or beside a graft increase the osteoblast bearing area. Death with formation of sequestra rarely occurs.

9. Bone Screws.

The autogenous screws as advocated by Albee are undoubtedly superior to any other, but they are not practical because of the difficulty in making them, the extra amount of bone used and the prolongation of the operating time.

Beef bone screws are undoubtedly satisfactory. They are absorbed in six months, are easily made, and can be kept so as to be available at any time. Bone screws give the most perfect fixation and are well tolerated.

10. Homoplastic Grafts.

These are derived from another individual of the same species. They are not satisfactory as union is usually slow and often fails.

11. Heteroplastic Grafts.

These are obtained from an individual of another species. Acting as a foreign body they usually die with the formation of

sequestra and are therefore very unsatisfactory.

12. Boiled Beef Bone Grafts.

These grafts have been used with a fair amount of success. According to Gallie and others they go through a histological change similar to the autogenous, but much more slowly.

Consideration of the chief fields of the bone graft.

1. Pott's Disease.

Bone graft gives us the most certain and quickest method of accomplishing a cure, diminishing the period of convalescence by several years. The results are almost miraculous when compared with the methods previously employed.

2. Fractures.

(a) In nonunion the bone graft offers the surgeon practically the only method known to secure union. It is useful even when the non-union is of many years' duration.

(b) In recent fractures the intramedullary graft or bone peg is useful as an agent of internal fixation.

3. Fracture of the Spine.

Grafts are useful in many types of fractures of the spine for the purpose of giving support. This field offers opportunities for further development.

4. Paralytic Scoliosis.

Some type of fusion is indicated after the scoliosis has been corrected in order to maintain the spine in the corrected position.

5. Spina Bifida.

Parallel grafts bridging several vertebræ and the sacrum are indicated in many of the more severe cases.

6. Spondylolisthesis.

In the exaggerated type of this condition the graft offers us the best method of fixation.

7. Arthritis of the Spine.

In certain types of arthritis with severe pain, the graft with subsequent ankylosis often gives great relief.

8. Chronic relaxation or Tuberculosis of the Sacroiliac Joint.

These conditions are best treated by

arthrodesis according to the Smith Peterson procedure.

9. Tuberculosis of the Hip.

The trend of opinion seems to be toward internal fixation by either the Hibbs extra-articular procedure or by a free bone graft.

10. Tuberculosis of the Tarsus or Carpus.

A very efficient arthrodesis can be obtained by a large graft which spans this group of bones.

11. Congenital Dislocation of the Hip.

In cases that cannot be reduced by the closed method, open operation with the reconstruction of the superior margin of the acetabulum with small grafts is universally used.

12. Chronic Dislocation of Patella.

Very satisfactory results are obtained by elevating the anterolateral margin of the condyle of the femur and maintaining this position by the implantation of small bone slivers into the aperture of the shaft.

13. Cranioplasty and Deformities of the Face with Congenital absence of Bone.

In this field the ingenuity of the orthopedic surgeon is severely tested, in as much as practically all of the various types of bone grafts may be used according to the nature and extent of the bone defect.

14. Paralytic Joints.

Bone grafts are frequently used to ankylose a joint that has been rendered useless by paralysis.

Principles of Bone Graft Technique

This work requires an absolutely perfect surgical technique and the finesse and precision of the master craftsman. I shall attempt to outline the most important details.

I. Time to Operate.

(a) If the operation is being performed simply to retain the fragments in apposition after all closed methods of reduction have failed, the fracture not being compound, no laceration of the skin being present, the swelling not too pronounced and the patient in good condition, it is well to proceed in about a week or ten days from the time of the injury.

(b) In the case of a compound fracture there are many factors which have an important bearing on the time to operate. A

careful study should be made of the wound while draining to ascertain the type of infection present. The period of drainage, the manner of healing and the age of the patient should be considered in an effort to ascertain the individual resistance to trauma and infection.

If the infection is staphylococcic, the drainage period of short duration, the patient young and resistance good, it is perfectly feasible to proceed at the end of three months, after drainage has stopped. On the other hand if the infection is severe and particularly if streptococcic in origin, the patient's resistance low and the drainage period prolonged, it would be foolish to proceed under a period of five or six months after the termination of drainage.

In this later type, Albee carries out a two-stage operative procedure, making a preliminary incision, excising the scar and transplanting a healthy skin flap, and then after a period of two weeks he proceeds with the bone grafting, providing the preliminary wound has healed.

II. Preparation of the Field of Operation.

At least forty-eight hours should be devoted to the preparation of the field.

The parts should first be scrubbed with soap and water and shaved for a considerable distance both above and below the area where the incision is to be made. Tincture of iodine (31½%) is then applied. Following this, moist compresses of tincture of green soap should be constantly applied until the next application of iodine is due. This means two applications a day. This procedure is repeated during the next twenty-four hours with the exception that sterile dressings are used in place of the tincture of green soap. This makes four coats of iodine before the patient comes to the operating room. Another coat, quickly followed by alcohol, is applied after the patient has been anesthetized on the operating table.

If the skin is sensitive to iodine, two per cent mercurochrome is a very good substitute.

III. Details of Operation.

The incision should be made through

iodine soaked gauze which encircles the limb.

The first knife is discarded when the skin is incised. The iodine soaked gauze is attached to the sides of the incision with towel clamps. From this point every detail of bone technique is carried out, with adequate instruments to insure speed, accuracy and a minimum trauma.

If possible the skin incision should not be located directly over the area in which the bone graft is to be implanted. It is perfectly possible, by this method to have the bone graft heal by primary union, even though we are so unfortunate as to have an infection in the skin wound.

Drainage is absolutely contra-indicated.

IV. Type of Bone Graft.

The autogenous graft is invariably the most satisfactory and, although it is not absolutely necessary, should comprise all the layers of the bone, namely: periosteum, cortex, endosteum and marrow.

If the inlay type is used the various layers should be in exact apposition with the corresponding layers of the recipient. This favors complete fixation, early proliferation of blood vessels into the graft, active osteogenesis and rapid callous formation.

If of the medullary type, the size and length of the graft has a direct bearing on the success of the operation, a large graft is stronger, gives better fixation, does not absorb as quickly, and osteogenesis is more rapid and complete.

V. Preparation of the Graft Bed.

All fibrous tissue should be removed from the ends of the bones and the ends freshened up. If there is eburnated bone at the ends of the fragments, it should be removed if possible, even if slight shortening results. The bed should extend at least two or three inches beyond the ends of the bones and down to the marrow.

If twin motor-driven saws are used in preparing the bed it is evident that if the same saws are used to procure the graft, the graft will be narrower than the bed by the width of the saws. If a washer the width of the saws is inserted between them before cutting the graft, an exact apposition between the

graft and bed is insured, resulting in a more effective internal fixation.

If an osteo-periosteal graft is used, 1-4 to 1-3 of the cortex of the host should be removed to accommodate a piece of bone of the same size as that removed. Osteo-genesis is very rapid in this type.

All slivers of bones should be utilized and laid beside the mother graft as they are very efficacious aids to rapid and complete osteogenesis.

VI. Post-operative Fixations.

The final essential of success in grafting is the immobilization of the graft until it has attached itself firmly. This is probably the most important factor of all and the most difficult to obtain.

A well fitting plaster cast gives the best fixation. This should be left on for at least three months. If roentgenographic examination at this time shows insufficient callous the cast should be reapplied until such time as the radiograph demonstrates sufficient callous formation. Following final removal, massage, active and passive motion, diathermy and electric baking are of great assistance in obtaining a good result.

CONCLUSIONS

1. Bone grafting is a very interesting and valuable adjunct to modern bone surgery.
2. The bone graft should be constituted of all the layers of the bone.
3. The graft bed should extend down to the medullary canal so that all the layers of the host will come in exact apposition with those of the graft, thereby increasing the osteoblast-bearing surfaces.
4. The graft bed should extend well beyond the fracture area in order to expose a larger surface of healthy bone.
5. A graft from the center of the shaft of the tibia is more satisfactory than the crest because a larger osteoblast bearing surface is exposed and the graft itself is more porous, thereby increasing the speed of bone formation.
6. A double graft or the addition of slivers increases the osteoblast-bearing surfaces. More bone surface is exposed for bone formation and more osteoblasts will survive.
7. If fixation is all that is desired, boiled

bone will suffice—the only objection being slow formation.

8. Able assistance, short operating time, accuracy with minimum trauma to tissues, a minimum amount of suture material and complete hemostasis are very essential elements of a successful operation.

9. External fixation until bone formation occurs is of extreme importance.

BIBLIOGRAPHY

- Gillie and Roberts—Transplantation of bone—J. A. M. A., April 20, 1918—1134-1140.
- II. Haas—Arch. Surg. 8:535-556—March 24th.
- III. Phemister—S. G. Ob. 1913—Vol. XVI—493.
- IV. Gallie—Canadian M. Assoc. J., 1914—Vol. VI P. 33.
- V. Graves—Brit. J. of Surg. 1914, Vol. 1 P. 438.
- VI. Albee—A. M. A., 1913—Vol. LX, P. 1044.
- VII. Baschinzew and Petrow: Deut. Zeitsrh. F. Chir. 1911, P. 113.
- VIII. Campbell—South. Med. Jour., 1919—XII P. 549-559.
- IX. Albee J. A. M. A., Vol. 81—1923—1429.
- X. Henderson, J.—A. M. A. Vol. LXXIV P. 715-717—1920.

DISCUSSION

DR. R. TUNSTALL TAYLOR, Baltimore, Md.:

I have been very much interested in Dr. Rankin's pictures, as all of us orthopedic surgeons have been using Dr. Albee's method not only for the spine but for the long bones. During the war an enormous amount of grafting had to be done in long bones, and in certain instances we were disappointed in the results of the Albee bone graft in that some of the bones being so large and the diameter of the graft being so small frequently the Albee bone graft would fracture or it would take at one end and not at the other. So we began to take thought as to the cause of this condition. A great deal of work was done by Killardney in this country and by Sidney Cohn, of the University of Maryland. It was found from their standpoint that the majority of the bone graft was situated in the periosteum and in the cortex immediately under the periosteum. The cells in the canaliculi were so far situated from the blood supply that these cells died before the graft became revitalized, so that the cortical end became a foreign body that had to be absorbed and the real, vital, living bone was obtained from the periosteum and the layer immediately below.

About this same time the French army began using the osteoperiosteal grafts, which were obtained in very much the same way from the tibia, except that you do not go so deep; you do not cut much more than a millimeter into the cortex and then remove this sliver of bone, very much like a strip of bacon, from the tibia. In France they used this, simply laid on the bone that was to be grafted. They put it in apposition, taking less thought for the alignment of bone. They got union but sometimes imperfect alignment, depending on the plaster cast to make it as straight as it could. This did not appeal to our mechanical American mind, so I used the Smith bone clamp to hold the graft in alignment with the host as nearly as possible. I will show you a few slides demonstrating that. Cohnsburg taught us that any method that carried a wire around the bone interfered with the periosteal circulation, and as our whole end result depends upon the perfection of periosteal circulation in nourishing the graft we found that wires were interdicted. Wire placed in a longitudinal direction, corresponding to the shaft of the bone, does not do so much harm. Similarly, laying plates in contact with the bone is not a good thing, because it interferes with the development of the bone there.

DR. J. E. RADER, Huntington:

I do not mean to discuss the paper but want to compliment the doctor upon his paper and upon the pictures. I think I can see a better day dawning for the West Virginia State Medical Association as regards attendance and as regards the program. I understand that Dr. Rankin ate his breakfast in Wheeling this morning, is here to present his paper, and expects to be back in Wheeling tonight.

DR. W. W. GOLDEN, Elkins:

In the case of the patella, I want to ask Dr. Taylor if he used this osteoperiosteal graft or a thicker graft.

DR. TAYLOR:

It was the whole thickness.

DR. E. BENNETTE HENSON, Charleston:

During the last six years I have been in the rather fortunate position of being able to observe the results of bone-grafting operations done during the war, having been examiner for the United States veterans in this district. To me an interesting point has been the operations in the upper extremity. Quite a few men have come before me who have had bone-grafting operations in the tibia or fibula or humerus. Some of them have gone back several times, and the men doing the operation have finally admitted defeat. It seems to me they rather overlooked the massive bone grafts. I have rather insisted upon that being done, but men who

have been operated on several times do not care to go back for further procedure.

Using the periosteal principle, I have slit the periosteum above and below and brought it back over the fracture and sutured it, hoping in that way to stimulate rapid union. I have not done many in this way, but I believe it is certainly better than using hardware (so-called) in these fractures to maintain the fixation and that we get better results.

DR. RANKIN, closing the discussion:

I have nothing further to say. I enjoyed the discussion, especially that of Dr. Taylor, and appreciate it very much.

THE PURULENT MENINGITIDES OF INFANCY *

By GEO. M. LYON, B. S., M. D.

Huntington, W. Va.

THE forms of meningitis presenting pus in the cerebrospinal fluid may advantageously be divided into four major groups as follows: (1) meningococcus meningitis; (2) pneumococcus and b. influenza meningitis; (3) streptococcus and staphylococcus meningitis; and (4) a group of meningitides caused by such occasional organisms as b. coli, b. typhosus, b. proteus, b. pyocaneus, etc.

Holt and Howland (1) give the approximate relative frequency of these forms as meningococcus (sporadic) 164, pneumococcus 78 and b. influenzae 40, streptococcus and staphylococcus 42 and b. coli and other forms as 1.

The exact diagnosis of meningitis depends upon the study of the cerebrospinal fluid. The purulent meningitides regularly show, in addition to pus in the cerebrospinal fluid, an increased pressure, increased globulin content, increased cellular count, and in smear or culture the causative organisms. Glucose and colloidal gold curve reactions deviate from normal but are of little practical importance in these purulent forms. The fluid may be clear and show only microscopic pus,

if it be seen in the very earliest stages. Usually there is so much pus present in the fluid that it varies from a ground glass appearance through the various stages of thickness and cloudiness to those extreme cases in which it is so thick and gelatinous that it will not come through the needle.

The history and the physical findings in a purulent meningitis of an infant are much the same regardless of the type of organism found. The chief findings are usually these. There has been a history of well being. Then the baby became feverish and refused some of its feedings. Then it vomited repeatedly and was either extremely restless and hyperesthetic or else was in a deep stupor rousing with difficulty. There may have been a convulsion.

On examination one finds a bulging anterior fontanelle and there is some cervical rigidity and often hyperesthesia. Strabismus may be present. The abdominal reflexes may be lost. The Kernig, the Brudzinski and other neurological findings seemingly so important in older children and adults are of little diagnostic value in studying the infant with meningitis.

A lumbar puncture is absolutely indicated if an infant presents any one of the follow-

* Read before the West Virginia State Medical Association, White Sulphur Springs, June 22, 1927.

ing findings: (1) a bulging anterior fontanelle; (2) cervical rigidity; (3) continued convulsions with fever and vomiting, or (4) sudden unconsciousness and collapse that persist. In the light of modern medicine it is a grave breach of our medical trust to fail to do a lumbar puncture in the presence of any of the above findings. It does not take a very extensive experience with sick infants to realize how many little patients presenting only a bulging fontanelle or a little tendency to cervical rigidity and essentially no other findings than slight anorexia or malaise, prove to be cases of mild sporadic meningococcus meningitis when the lumbar puncture is done and the fluid is studied. These are the cases with the brightest prognosis when detected early and properly treated. When unrecognized, these are the little patients that tend to recover from the acute stage only to suffer and die from the horrible neurological conditions resulting from abnormal cerebrospinal fluid drainage, increased intracranial pressure and scarring and adhesions of the post-meningitic type. Lumbar puncture in an infant is a very safe procedure when properly done. Should its findings prove negative one has followed the proper method of study and will know that a mild case of meningococcus meningitis is not going unrecognized. It is in pleading for these little infants who are needlessly lost or crippled that I have chosen this topic for today's paper.

Meningitis is far more frequent in infancy than in later years. Those less accustomed to working with infants in matters of diagnosis will meet greater difficulties in arriving at a correct diagnosis previous to lumbar puncture than in older children or adults because one has to rely mainly on objective findings as the subjective findings are almost completely wanting. Further differences in the characteristics of the disease occur because of the different anatomical conditions existing. The infant with a relatively non-rigid calvarium, presents the neurological findings coming from increased intracranial pressure at a relatively later time in the disease. The older child or adult with a relatively rigid calvarium early shows signs of

increased intra-cranial pressure such as headache, projectile vomiting, strabismus, etc., things so generally seen in older children and of so little real value early in a case of meningitis in an infant. Fortunately we usually have the presence of a bulging fontanelle or cervical rigidity occurring previous to the time when marked pressure findings or damage occur. This is a matter of great practical importance in the proper management of the case, as it can be readily understood why we can get better end results in those cases detected and treated before increased intracranial pressure has wrought its damage.

In considering the individual groups, the meningococcic form is by far the more common, occurring in both epidemic and sporadic forms. As a general rule the epidemic form tends to be more fulminating, more malignant than the sporadic form. The latter has equally as marked a tendency to occur in the more mild forms. Therefore we have all gradations of severity ranging from those with practically no pressure increase, no fever, no real sickness and complete recovery up to the very severe malignant type that lasts barely twenty-four hours from the onset. Cases of this type are usually confined to epidemics.

The epidemic form tends to be more common among the older children and adults and relatively less frequent among infants. This is probably due to the fact that although infants have the least immunity to the infection they also are relatively isolated during infancy, and have fewer chances for contact with carriers.

The infection is spread by carriers, the percentage of whom is much greater during times of epidemics than in non-epidemic times. The virulence of a given epidemic seems to gain in strength and impetus as it passes from one individual to another until finally it begins to die out because of the lack of susceptible individuals. The epidemic or more malignant forms may be confused with the pneumococcus or *b. influenzae* type of meningitis until after the lumbar puncture and fluid study have been made.

The pneumococcus form tends to be the

most malignant of all forms of meningitis. It usually comes with a very sudden, severe onset. Extreme prostration comes on early. The signs of meningeal irritation are not as marked as in the less severe meningococcic form. Marked hyperesthesia is followed by extreme collapse usually in twenty-four to thirty hours and death usually supervenes before the fourth day. Therefore an early malignant, fulminating meningitis is usually either of the malignant meningococcic form or a pneumococcic form. At times the influenzal type may begin with such a stormy onset and live only three or four days but this is very uncommon. The other forms of purulent meningitis are rarely so acutely fulminating or so stormy in onset and course. They usually live from five to many days regardless of how severe and hopeless the case. The meningococcus forms, the pneumococcus forms and the *b. influenzae* forms are usually primary blood stream infections quickly localizing in the meninges—in fact localizing so quickly that they are usually considered primary meningitides. The other forms of purulent meningitis are usually secondary to some focus of infection or injury extending into the spinal fluid tract. With the above facts in mind one may have a fairly good conception of just what type of infection will be found when the lumbar puncture is performed on the meningitis suspect.

The pneumococcus forms rarely live more than four days. Gross surgical drainage of the cisterna magna probably yields the most hopeful procedure of these cases.

Second in choice would be placed frequently repeated drainage of the cerebrospinal spaces by means of lumbar puncture, cisterna puncture, ventricular puncture and subdural puncture. Optochin, dyes, specific antipneumococcic sera, non-specific protein therapy have all been used in various manners, some intravenously and some intraspinally. The results have been uniformly unsuccessful. In the literature there are about eighteen reported recoveries in authentic cases of pneumococcus meningitis.

The influenzal form has an especially marked predilection for infants. *Rivers* (2) in reviewing the literature has shown that

of 197 cases reported in the literature, 79 per cent were under two years of age. In this group of 197 cases, 92 per cent died. Of the seventeen patients recovering 12 or 70 per cent were over two years of age.

The same type of surgical drainage referred to above has been used in cases of this type and offers some hopes. *Rivers* has prepared human sera by immunizing himself and others against specific cultures and then treating the little patients with an autogenous serum. Allied strains have been used in other cases to produce an influenzal serum. There has been no uniformly encouragingly good method of treatment for these cases although they do seem to recover more frequently than the pneumococcus type.

The streptococcus form often yields successfully to gross surgical drainage of the cisterna magna. In some cases repeated drainage of the spinal canal, of the ventricles, of the cisterna and of the subdural spaces has given a successful method of treatment. Autogenous vaccines and autogenous sera have been used with varying results which have as a rule not been good. Blood transfusions have been used with little results. Drainage in a surgical manner seems to be the method of choice. *Dandy* (3) has given an excellent description of this surgical procedure with a report of some successful recoveries.

Where secondary to proximal regions of infection, the primary infection must be cleared up as well. *Royster* (4) reported a case of streptococcus meningitis treated with gentian violet intraspinously with what seemed to be at least a temporarily favorable effect.

The staphylococcus forms, like the streptococcus forms should be treated with surgical drainage. These cases quite frequently localize well and may be treated surgically with good results. Next to the mild meningococcic form, this form may be the most benign and therefore gives us the greatest proportion recoveries next to the meningococcic form. Autogenous vaccines are reported to have been especially efficacious in this form of meningitis but fail miserably in those cases where drainage is not adequate. The

streptococcic and staphylococcic forms of meningitis usually have a much brighter prognosis than the pneumococcic of influenza types of meningitis.

The usual forms such as are occasional by *b. coli*, *b. proteus*, *b. typhosus*, *b. pyocyaneus*, etc., are very rare and often they do recover. They are best treated by gross surgical drainage or secondly by frequently repeated puncture drainage of the various spaces.

Having thus disposed of the less satisfactorily treated forms of purulent meningitis we may now consider in some detail the management of the treatment of the meningococcic form of meningitis. It is by far the most common form. It is one that gives a relatively hopeful prognosis when detected early and properly treated. The advent of specific antimeningococcic serum has revolutionized our treatment of meningococcus meningitis, and so to a great extent we have been able to reduce the suffering and mortality from one of our most dreaded diseases.

The severe forms of meningococcic meningitis may simulate the malignant forms described above. Lumbar puncture and study of the spinal fluid yields the necessary diagnostic information. The mild forms are apt to be overlooked in private practice because they often do not seem sick enough until a bulging fontanelle or cervical rigidity can be detected.

These are the cases that can be treated successfully with almost uniformly good results. These are the cases that if not cared for properly tend to recover from the acute infection to fill our homes and institutions with children crippled both mentally and physically. It is one of the great trusts of modern medicine to detect these babies early and see that they have the proper treatment throughout, thus to avoid one of the most tragic forms of human suffering. In the last five years I have seen twenty-eight of these little physical and mental wrecks and during the same time only ten cases of acute meningococcus meningitis.

Consideration of Details of Treatment.

When possible the patient should be in a hospital with competent attendants. These

patients stand moderately long transportation well. They should be thoroughly isolated and their nurses not allowed to go near other patients, thus usually requiring special nurses. The nursing should be the best and most faithful available. Frequent change of position, alcohol baths, etc., tend to keep up the general condition.

The feeding often proves to be the deciding factor in the patient's life, as almost invariably it presents one of the greatest problems in the management of a case of meningitis. Rarely can or is it advisable for these little fellows to go directly to the breast. When requiring breast milk it should be given by bottle, Boston feeder or gavage. Where formula must be given, a suitable one must be chosen and given as necessity may require. The standard principles of infant feeding and hygiene should be followed out in especially minute detail. The older infants may have their cereals, eggs, scraped meats, etc., when possible for them to take it. The better one is able to cope with the problem of maintaining nutrition the better are the chances of a good result from serum therapy and drainage.

Drugs play only a minor part in the therapy. Codein is best for pain or cough. Elixir of luminal or bromides may be used to quiet hyperesthesia and restlessness. The fewer drugs given by mouth the better and whenever other channels of medication can be used they should be.

Hydrotherapy is important in the usual routine of skin therapy. Water and orangeade with 5 per cent glucose added may be very helpful if the intoxication is great and the intestines will stand such an intake. The gavage should be resorted to unless the daily quota of fluids is fully reached each day.

The one most important form of therapy is the intraspinal administration of antimeningococcic serum. Next comes the question of keeping up the fluid intake. Third, comes the maintenance of nutrition. Fourth, comes the care of the skin. Fifth, comes the continuance of cerebrospinal drainage to the point where it is no longer necessary. Sixth, comes the final study of the communicability of all the communicating passageways that

might be blocked causing hydrocephalus of the obstructive type.

The choice of a serum is not a serious matter provided it is from one of the better biological houses and has been well refrigerated since produced. It is the concensus of opinion that the serum started by Amoss at the Rockefeller Institute is the best we have ever had available in the United States. That produced by the New York Board of Health is probably equally as good. Now that the almost identical strains are included in the strains at the U. S. Hygienic Laboratory at Washington against which the commercial sera must be checked, we may feel safe in using any good biological house's anti-meningococcic serum if we can trust the honesty of those having the refrigeration of it in charge. The United States Public Health Service demands that the horses from which the serum is taken be immunized and receive intravenous injections of living cultures of the twelve strains sent out from the Hygienic Laboratory at Washington.

Typing and matching strains and sera is not necessary as was done formerly.

The manner of administration is essentially as follows: Always have the serum container resting in a vessel of warm water as the puncture is begun so that if needed it will be a little warmer than body temperature so as not to be a source of shock as it is injected into the spinal canal. This is important in avoiding reaction especially in the first few injections. It is best to clean the skin with mercurochrome 5 to 10 per cent and alcohol rather than iodine, as in infants the repeated use of iodine (as may frequently be necessary) may cause the skin to crack, become irritated and be the source of little superficial infections that may later complicate the recovery of the patient. Mercurochrome and alcohol are adequate sterilizing agents and when properly done leave no local irritation even in cases where as many as one hundred lumbar punctures have been necessary before recovery. This is an important point in the care of those cases that drag out for some weeks. When the needle is aseptically introduced the fluid should be allowed to run out until the drops fall at

about twenty to the minute. Then slowly by the gravity method inject 5cc less of the serum than were removed of the spinal fluid. The danger signal is embarrassed respiration and if the embarrassment does not cease quickly the fluid should be withdrawn at once by lowering the gravity tube. A safe guide to the patient's condition may be had from the condition of the pulse, the respiration and the tension of the fontanelle. The fontanelle should be level or slightly depressed when the serum has all been injected. Fortunately, infants with their less rigid calvaria are not so susceptible to pressure changes and serum pressure and therefore they are much more easily treated than the older child or adult with the rigid unyielding calvarium. At times the pus is so thick and gelatinous that it may be necessary to withdraw small amounts of the thick fluid and under very gentle pressure inject small amounts of the specific serum. Even these very small amounts should be left in as they are helpful and the subsequent injections become larger and the thickened fluid becomes thinner. In these cases injections should be made every four to six hours until a goodly amount of serum may be introduced at one time. In other cases it may be necessary to put in two needles in different spaces and irrigate through and through with sterile salt solution or serum. After the injection has been completed allow the needle to remain in for five minutes or so, and see if there is any reaction. If none occurs it may be safely withdrawn. Then the skin area should be sponged with alcohol, gently pinched between the fingers so as to close the needle tract. This causes the tissue planes to slide over one another so that there will be no leakage of fluid and no introduction of infection through a patent needle opening. When dry there is no weeping of the needle tract, a sterile dry sponge should be applied and held in place by adhesive tape. The nurse should inspect for leakage frequently as it is in this manner at times that *b. coli* infections get from the stools into the cerebrospinal tract. The immediate serum shock practically never occurs in infants. The delayed rash reaction to the serum occurs very rarely in infants. In either case 5 to 10

minims of adrenalin 1:1,000 suffices to restore matters to normal. The greatest dangers are from putting the serum in too rapidly and under excessive pressure.

The next important measure to decide is as to how frequently to treat the patient intraspinaly with serum. I believe it is best to treat all cases every eight hours until the spinal fluid yields negative cultures for meningococci. After the first negative culture the serum injection may be reduced to every twelve hours for three days and then to once daily for three more days, providing cultures remain negative. Before stopping the administration of serum, the ventricles should be punctured and the intraventricular fluid (both right and left) cultured. When it and the fluid from the lumbar puncture are sterile for three days it is probably safe to stop the serum injections and take daily cultures. At the first sign of any positive cultures then it should be begun again. It is important to know that living organisms are not pocketing off in one of the ventricles, the subdural spaces, the cisterna magna or the spinal cerebrospinal spaces. It is by the breaking down of one of these pockets that most cases of relapse are occasioned.

The next important thing to decide is when to quit simple drainage as this is one of the most important steps in the management of these cases. It should be done frequently enough and long enough to keep the head as measured by a steel tape, the same size each day. The tension on the fontanelle is a good index as to when it is time to drain again. This drainage usually becomes less and less in amount but in some cases must be kept up for a matter of months. Before stopping drainage entirely it is best to inject 1 cc of neutral phenolphthalein as prepared by Hynson, Wescott and Dunning of Baltimore for Dr. Dandy as described by *Dandy and Blackfan* (5) some years ago. I inject into the right ventricle. If I can recover the dye from the left ventricle in 10 min. from the subdural space in 10 min. and from the lumbar puncture in 15 min., I feel that I have a freely communicating cerebrospinal system and that there are not many chances of any sequelae occurring, particularly not any post-

meningitic hydrocephalus. If these last measures are not carefully followed out especially by the prolonged drainage and the determination of the absence of any obstructions, one is often forced to face a little patient that has recovered from the immediate attack only to have trouble with an obstructive hydrocephalus. These cases can be corrected when detected in time. It is the detection of them that we fail to realize the value of.

At times it is necessary to maintain fluid equilibrium by giving physiological saline intraperitoneally, or glucose 10 per cent intravenously. In other cases blood transfusions may be indicated. These special procedures are to be resorted to as necessity demands.

Some insist that intravenous serum should be given. It is very doubtful if there is any use giving intravenous serum after the infection has gone so far as to give signs of meningeal irritation or increased intracranial pressure.

In many cases there will be found a meningococcus pneumonia occurring simultaneously with the meningitis, and this must not be misleading for more than once a meningitis has been missed where there was a pneumonia and a meningitis co-existing and the meningeal signs were considered to be only a meningismus accompanying a pneumonia.

Not infrequently there will be a purulent otitis media caused by the meningococcus. Carriers are frequently found to have an ear, nose, throat or infected sinus with the meningococcus. I have had very good results with the use of the specific serum instilled in the ears of cases of meningococcus otitis media. As I have cleansed the ear canals myself two or three times daily and instilled the serum or dye myself after seeing the clean drum and its patent incision, one cannot say that any one part of the treatment is responsible for the good result. One anturum containing meningococcus pus in a little patient of two years cleared up under irrigations of salt solution and the instillation of specific serum twice daily, and mercurochrome 2 per cent twice daily.

In checking over a series of patients who have not had perfect permanent recoveries or have had subsequent sequelae arise, I am led to believe that in the treated cases there are three big mistakes often made by those not thoroughly acquainted with meningococcus meningitis in the infant. They do not treat with serum long enough or frequently enough. They do not take the extra precaution of trying to ascertain whether there is any obstructive condition to be found, at a time when such could more easily be relieved.

In conclusion let me say again that at present gross surgical drainage through the cisterna magna yields the most hopeful method for the treatment of pneumococcus, influenzal and streptococcus types of meningitis. The staphylococcus form can usually be handled satisfactorily either by this means or by local surgical procedures, with autogenous vaccines helping at times. The unusual forms such as are occasioned by *b. coli*, etc., would probably do best when treated in

the manner outlined for the other forms above. The meningococcic forms undoubtedly do best under early, proper antimeningococcic serum therapy with proper management throughout, in order to accomplish a cure of not only the immediate infection but as well to prevent as much as possible the awful sequelae that may happen even after serum treatment when it is given in insufficient or too infrequent doses or when there is insufficient post-serum drainage.

Let me again make my plea for the small infant with the mild meningococcic form, that is not very sick, that may have no fever, but which does have a bulging anterior fontanelle or a little cervical rigidity, and little or nothing more. These are the little fellows that offer such an excellent chance for a perfect result. If they are not detected, it means almost certain crippling to the little patient either mentally, physically or both. Let us do our part to save these little ones from this terrible and to a great extent avoidable suffering.

SOME OF THE CALAMITIES THAT MAY FOLLOW ATTEMPTS AT THE INTERRUPTION OF PREGNANCY *

By JOHN E. CANNADAY, M. D.
Charleston, W. Va.

NATURE with reference to early pregnancy and attempts at its interruption has not provided for the care or the protection of the patient against infection at this particular time as she has at a later date. We all know that among the more common accidents are perforation of the uterus or its rupture from dilatation or from the curette. Of course, the number of calamities and the number of complications that may ensue are legion and could hardly be overestimated. There are, in particular, three cases I wish to report that have come under my observation, all due to perforation of the uterus. These were all cases of attempted abortion.

In the first case there was a small perfora-

tion made in the fundus of the uterus with the curette. A loop of the sigmoid was drawn through, I do not know whether with the curette or with the forceps. The perforation in the fundus of the uterus was so small that in drawing the sigmoid through the peritoneal coat and the blood-vessel supply were pulled off, and the doctor doing the curettment thought it was the umbilical cord. He overlooked the fact that at that early stage no umbilical cord was present. When I saw the patient she had been moved by train about a hundred miles, after this had happened; the entire sigmoid and most of the ascending and transverse colon had been drawn into the uterus. The patient naturally was in a state of profound shock. I opened the abdomen under local anesthesia

* Presented to the West Virginia State Medical Association at White Sulphur Springs on June 22, 1927.

and hurriedly repaired the damage as far as possible. I resected the bowel that had been torn loose from its moorings and did a cecostomy. The patient died in thirty-six hours.

In the second case the uterus had been perforated and a portion of the sigmoid drawn through and torn loose from its blood vessel supply. In this case, by bringing the remains of the sigmoid taut I was able to do an end-to-end anastomosis by the invagination method, an anastomosis by intussusception, omitting to some extent the mechanics of intussusception. A rubber tube was placed in the rectum to relieve the gas pressure. The patient fortunately made a complete recovery, with no unfortunate incident in the convalescence and, so far as I know, has gotten along all right since.

In the third case, when I first saw it, about thirty inches of the small bowel were protruding through the vagina. The patient was in good condition. The accident had occurred just about two hours before. I did a laparotomy and did a resection and anastomosis. I want to call your attention to the great ease of doing an anastomosis by the intussusception method, by drawing the upper end down into the lower end and suturing it without the use of clamps. It is perfectly simple, is done very rapidly and very easily, and is a life-saving procedure. In this particular case the lumen of the bowel was of pretty good size, and I did not think at the time it was necessary to do an enterostomy above to relieve the gas pressure. The patient got along pretty well but continued to vomit occasionally—about once every twenty-four hours. This went on for about four days, with the patient showing slight signs of distention. A diagnosis of partial obstruction was made. The patient began to improve immediately after this and made a good recovery. The sinus left after the enterostomy tube was removed persisted for several days—I think just about two weeks. Then it gradually closed. In regard to this, I think it is very important for us to make every effort to get a valve-like opening when were told at one time that if we passed the enterostomy tube through omentum. We were told at one time that if we passed the

opening would close within twenty-four hours, and we tried that method routinely for a good many years. Nevertheless in occasional cases I have seen the opening persist, even if the tube was passed through omentum, so that method, even, is not absolutely fool-proof. Our good friend Dr. Horsley, of Richmond, has devised an enterostomy method in which he sutures the peritoneum over the end of the tube, and that method has its advantages in case one is not in too big a hurry. It is an advantage not to use too large an enterostomy tube. A small tube answers the same purpose as a larger tube, and I think there is sometimes a tendency to use too large a tube.

I wanted to report these three cases to show that curettment or evacuation of the uterus is not something to be gone into lightly and that accidents can happen sometimes with our best men. We can not be too careful in undertaking a procedure of that kind.

DISCUSSION

DR. WILLIAM NEILL, Baltimore, Md.:

As Dr. Cannaday has said, one can not be too careful not only in doing a curettment for abortion but the ordinary simple curettements that we do at frequent intervals, curettment being one of the more frequent of the lesser gynecological operations. Dr. Kelly, of Baltimore, has recently written an article on the dangers of curettment, impressing upon the profession the dangers of this supposedly minor procedure. Of course, we have all seen all sorts of complications in the emptying of the uterus for various reasons. I myself had the misfortune to puncture the uterus, but fortunately nothing came of it. The main thing, of course, when the complication arises is to be able to recognize that it has arisen and take the necessary steps to correct it and in that way take the necessary steps to save the patient's life. What I should like to bring up is the importance of care in doing curettage and limit-

ing the number of curettages, because often it is done with no sufficient reason and opens up a portal for infection.

I think Dr. Cannaday's paper is very timely and very important.

DR. G. M. LYON, Huntington:

I wish to comment briefly on the third case. There were two remarkable things: one the immense amount of damage done to the bowel from a catheter, using a stilette. The patient signed a statement saying she herself had done this damage. There were

thirty inches of bowel in the vagina. The second remarkable thing was that with all this bowel torn loose from its blood supply there was practically no intra-abdominal hemorrhage, showing how nature sealed off the blood supply. The patient had considerable hemorrhage, but this was from the rent in the uterus.

I also wish to reinforce Dr. Cannaday's remarks about the ease of doing the end-to-end anastomosis.

Reported from the Clinic of the Charleston General Hospital.

THE OPERATIVE TREATMENT OF HERNIA OF COAL MINERS WITH LIVING SUTURES *

By E. BENNETTE HENSON, M. D.
Charleston, W. Va.

EVER since Marcy¹ in 1881 first advocated high ligation of the hernial sac, transposition of the cord, and reconstruction of the inguinal canal, the operative treatment of hernia has been a fairly successful operation, but by the most skillful surgeon failures have been encountered so often that any new method of repair has been watched with interest. Bassini² in 1888 proposed the same principles as laid down by Marcy and the Bassini operation is a standard procedure today. The point which he advocated: The restoration of the posterior canal wall by suturing the internal oblique and transversalis muscles and their conjoined tendon to Poupart's ligament is an accepted surgical principle. W. B. Coley³ in 1892 tried leaving the cord undisturbed by suturing internal oblique and transversalis muscles to Poupart's ligament over the cord, similar to the method advocated by Ferguson⁴ in 1899. They abandoned this method after finding in a parallel series of cases that recurrences were much more frequent than where the cord transplantation was done.

Ferguson's method still has many advocates but is being generally abandoned. The

Bassini operation does not meet the needs in all cases as demonstrated by the large number of recurrences noted in the obese, and in those of thin and poorly developed abdominal muscles. Many methods have been developed to bolster up the posterior canal wall by some form of transposition of the rectus sheath or muscles. Wolfer⁵, Bloodgood⁶, Halsted⁷ and others each have described their method. I have made use of the rectus sheath in cases where I thought it indicated, but of recent years I have practically in all cases utilized the aponeurosis of the external oblique muscle by suturing it to Poupart's ligament under the cord leaving the cord lying superficially as advocated by Stetten⁸ in 1923. This use of the external oblique in this manner is usually all that is needed to bolster the posterior canal wall. In all the methods above described the sutures were of the non-absorbable material, such as silver wire, linen, etc., or absorbable material such as kangaroo tendon or catgut.

McArthur⁹ in 1904, utilized a strip of the external oblique aponeurosis cut parallel to the customary incision made in it in the operation for inguinal hernia, but leaving it attached at its lower extremity to suture the conjoined tendon to Poupart's ligament. This

* Read before Surgical Section, West Virginia Medical Association, White Sulphur Springs, June 22, 1927.

I believe is the first use made of the living suture for repair of hernia.

For the past two and one-half years I have been using this type of suture in routine repair of hernias. During this time the total number operated upon has been over one hundred. Seventy-five of this number have been coal miners. The occupation of coal mining is one of the hardest occupations the abdominal muscles encounter and any defect in the abdominal wall immediately renders a miner unfit for duty. The recurrence of hernias in this class of labor has always been unusually high. It occurred to me that by the use of a living suture this recurrent rate could be materially lowered. My series of cases while not large, is I believe, sufficient to warrant a report. I am unable to find a similar series from which to draw comparison.

The operative technique is as follows: An incision extending one inch above the anterior superior spine of the ilium diagonally downward and inward to the hair line of the pubes is made through the skin and fat exposing the fascia of the external oblique; the external ring is located and the condition of the fascia is noted before splitting it, in order to choose a strong band for a suture, the fascia is split from the ring outward in the fascial plane so that the strong fibers will be on the medial side of the wound, the fascia is split until muscle fiber is encountered and then a suture about one-fourth inch to one-half inch in width (depending upon the character of the fascia) is split carefully back to the attachment near the pubic bone and is there left anchored, and not severed. The assistant then prepares the suture by anchoring a special needle onto it, while the operator finds the hernia sac and ligates it preparatory to the actual repair of the hernia defect. Beginning from the medial angle the repair of the hernia is begun using care not to split the Poupart's ligament with the large needle. At this point I wish to emphasize the importance of thoroughly scouring both Poupart's ligament and fascia and muscles free of all areolar tissue. This is very important, and will be discussed later. After the tissue is prepared as just mentioned the conjoined

tendon is sutured to Poupart's ligament beneath the cord in the same manner as a Bassini. Anchoring the suture with chromic catgut suture. The fascia of the external oblique is then sutured by interrupted No. 3 catgut suture to Poupart's ligament, leaving the cord lying superficial to the fascia. Recently I have been making a small slit in the fascia of the external oblique to allow the cord to be encircled by the fascia and thus reinforce the abdominal wall where reinforcement is most needed. The skin is closed with skin clips and then a small layer of cotton is applied to the incision and covered with cullodion. With the incision treated in this manner skin infection is kept to the minimum. Patients are allowed up after the seventh day.

Follow-up methods have to differ in different localities, and in this instance I have been compelled by circumstances to depend upon the referring physician for the follow-up on most of these cases. I want to take this occasion to thank the doctors at the coal mines from whence these cases came for their willing aid in examining and reporting to me their findings.

Total number of coal miners operated upon by living suture technique, seventy-five, with three bilateral hernias, making a total number of seventy-eight hernias. There were no deaths.

TABLE No. 1

	Number Cases	Incisional Hernia	Femoral Hernia	Umbilical Hernia	Strangulated Hernia	Primary Inguinal Direct or Indirect	Secondary or Recurrent	TOTAL
Hernia								
Plastics	75	2	3	1	1	66	5	78
Deaths		0	0	0	0	0	0	0
Failures		0	0	0	0	2	0	2

TABLE No. 2

Hernia-Plastics Examined								
30 to 6 Mo.								
Afterwards	50					45	5	50
Failures						2	0	2

Of the five recurrent hernias operated there has been no recurrence. In one case a

recurrence was reported and my examination confirmed the recurrence but upon operating the original operation was found intact. The recurrence was beneath Poupart's ligament. A typical femoral hernia. Of the total seventy-eight hernioplastics eight have been less than six months and will not be considered. Of the remaining seventy, twenty have not been reported to me as being examined, leaving fifty that have been examined either by myself or the referring physician. The two recurrences above noted have occurred in fifty cases.

Of these two recurrences one was a poorly nourished man who was treated in the hospital one week prior to operation, after operation he developed an infection, and before going to work his physician noted a bulging in the lower angle of the wound, but the last eight months this has not grown larger and does not give him any trouble. The other case had no trouble until caught in slate fall when he noted a lump in his side, at operation there were two small openings in the fascia at sight of operation and a very large femoral hernia.

The results obtained by the living suture and the ease of obtaining the suture has made this procedure my method of choice. A large majority of primary indirect inguinal hernia will be successful in the hands of competent men regardless of suture material used, if the two planes of fascia are brought into apposition without the intervention of muscles or areolar tissue. Experiments such as Seelig and Chouke¹⁰, Koontz¹¹ and others have shown the importance of union of fascia to fascia compared to union of fascia to muscle. In those hernias in which the muscles and fascia are of very poor quality I deliberately traumatize and scour the muscle free until muscle fibers are exposed, hoping in this way to excite the connective tissue between the muscle bundles to throw out more connective tissue and thus bring about union of muscle to fascia as well as fascia to fascia. In traumatic wounds I have noted that after muscle has been torn badly that where I later have had to operate in that area I would encounter an enormous amount of firm connective tis-

sue. Trauma to muscle stimulated connective tissue growth.

In two large incisional hernias I have used the strips of fascia lata as advocated by Gallie. Just recently Coley and Bourke have reported excellent results in large recurrent hernias by the use of numerous fascia lata grafts by weaving them across each other over the weakened inguinal canal. Koontz¹² reports that he has been able to preserve fascia lata strips in alcohol and hopes to have them on the market soon. Cannaday and I made use of the terminal end of the round ligament for suture in one case of femoral hernia with excellent results.

Each hernia presents its own problems and the surgeon should be prepared to apply that method which seems to him to be indicated at the time.

SUMMARY

Over one hundred cases of several types of hernia operated by use of fascia of external oblique muscle for suture.

Report based on seventy-five cases of inguinal hernia of coal miners, fifty of this number having been examined from six to thirty months after operation.

Two recurrences in fifty traced cases. Five cases previously operated with failures were operated with living suture with no recurrences.

All cases were men who are coal miners. Hernia renders a coal miner unfit for employment. Relief from recurrence therefore is quickly sought.

Unable to find a similar series of cases applied to only one occupation, which I feel is the most accurate means of comparison.

Living suture is utilized by nature in the repair, and is neither absorbed nor thrown off as a foreign body, but is incorporated in the connective tissue repair, and for that reason has distinct advantage over other suture material.

REFERENCES

- 1 Marcy: The cure of hernia by the antiseptic use of animal ligature. Tr. VII Internat. M. Congr. 1881, ii, 446-448.
2. Bassini: Sopra 100 casi di cura radicale dell' ernia inguinale, operate con metodo dell' autore. Ital. chir. congr., Napoli 1888.
3. Bull and Coley. Report of 2000 operations

for the radical cure of hernia. J. Am. M. Ass., Chi., Sept. 21, 1907.

4. Ferguson: Oblique inguinal hernia; typical operation for its radical cure. J. Am. M. Ass., Chi., 1899, xxxiii, 6-14.

5. Wolfler: Zur Radikaloperation des freien Leisterbruches. Beitrage z. Chirurgie Festschrift T. Billroth. Struttgart, F. Enke, 1892, p. 552-603.

6. Bloodgood: The transplantation of the rectus muscle in certain cases in inguinal hernia in which the conjoined tendon is obliterated. Johns Hopkins Hosp. Bull., Balt., 1898, ir, 96-100.

7. Halstead: The radical cure of inguinal hernia in the male. Johns Hopkins Hosp. Bull., Balt., 1893, iv, 17-24.

8. Stetten: Further observations on a modified inguinal hernioplasty technic, with completed utilization of the aponeurosis of the external oblique. Ann. Surg., Phila., 1923, lxxviii, 48-60.

9. McArthur: Autoplastic sutures in hernia and other diastases. J. Am. M. Ass., Chi., Oct. 8, 1904.

10. Seelig: M. G. and Chouke, K. S. A. fundamental factor in the recurrence of inguinal hernia. Arch. Surg. 1923, vii, 553-572.

11. Koontz, A. R.: Muscle and fascia suture with relation to hernia repair. Surg. Gyn. and Obst. Feb. 1926.

12. Koontz, A. R.: Alcohol preserved fascia lata graft. Paper read before A. M. A. Meeting, Washington, D. C., May, 1927.

ABSTRACTS

Thyroid Function Test

Dr. Alfred E. Koehler, Henry Ford Hospital, Detroit, recently read a paper before the American College of Surgeons in which he described a new laboratory test for thyroid function. About two cubic centimeters of a patient's blood serum is placed in a test tube to which is added a substance easily oxidized. This is shaken up with oxygen, the rate of oxidation giving the basis for a percentage computation. Thus, a test tube reaction is obtained which Dr. Koehler has found to coincide almost uniformly with the basal metabolic rate. The similarity of this new test to the basal metabolic rate determination is obvious: one is a determination of the rate of oxidation in the body; the other, the rate of oxidation in the test tube.

The psychic influence is a real stumbling block in basal metabolic rates, and is important whenever an attempt is being made to make a differential diagnosis between

unstable nervous conditions, tuberculosis, and early hyperthyroidism. The elimination of the psychic factor, and the greater accuracy of a test tube reaction would be a great advance in laboratory medicine.

Dr. Koehler believes that there are two substances in the blood serum which normally preserve a certain ratio. An excess of one, or a deficiency of the other would produce a hypothyroidism clinically: vice versa, a deficiency of the first, with an excess of the second would produce a hyperthyroidism. Various grades of combination are of course possible. If the exact nature of these substances could be determined, and prepared synthetically, it is quite possible that we would have a powerful weapon to combat an increased or depressed metabolic rate.

At present, the test is too elaborate, and requires too much laboratory equipment, but Dr. Koehler is working on a colorimetric determination which will simplify the method so that it can be used clinically. We wish him speedy success.

Cholecystography

By Maurice Feldman, M. D., Baltimore, Md.
(From the Gastro-Enterological Clinic of the Department of Medicine, University of Maryland.)

Inasmuch as the oral method of gall bladder visualization is nowadays practiced to a large extent, replacing the intravenous method, it appeared important to us to determine a similar toxic effect or liver damage might also arise as the result of this method of administration. From numerous experiments performed by Friedenwald, Kearney and myself (4) on animals following the oral administration of the dye, even when given in massive doses, it was observed that neither degenerative nor necrotic changes could be produced in the liver or kidneys.

In order to determine, however, whether pathological changes are produced in the human subject as an effect of the dye when given orally for purpose of cholecystography, an attempt was made to correlate certain

clinical symptoms in a large series of cases following its employment.

On this account the following questionnaire was sent to twelve prominent radiological clinics:

State the approximate number of cases upon whom the gall bladder visualization test has been made.

In your experience, could death of any patient be attributed directly to the tetraiodophenolphthalein dye? If so, state number of cases and whether the dye was administered by the oral or intravenous method.

In your experience has the dye produced extreme toxic symptoms followed by inflammatory changes in the liver (hepatitis)?

State number of cases in which jaundice followed the administration of the dye.

State the cause of jaundice.

The results were as follows:

Total number of cases collected, 18,000.

Death attributed directly to the tetraiodophenolphthalein, none.

Extreme toxic symptoms (signs of hepatitis), none.

Jaundice following the administration of the dye, 3.

Conclusions

As the result of a collective investigation of 18,000 cases in which cholecystography was performed, the dye being administered by the oral route, the results uniformly indicate that this method is free from all danger; furthermore, there has been no evidence presented to indicate that any degenerative changes have been produced in the liver or kidneys by the procedure. The conclusions have been fully confirmed by the experimental findings on animals, already reported by Friedewald, Kearney and myself (5).

Diathermy in Gonorrhea

Speaking as part of a symposium on the treatment of gonorrhea before the Section of Urology of the New York Academy of Medicine, Dr. Leo L. Michel recited his experiences in the field of diathermy. Dr. Michel has not given up the other modes of attack on this infection but has supplement-

ed them by a strict adherence to the fundamental laws of the application of the comparatively new method of application of heat to the interior of the body.

Uniformly good results have not been attained in acute anterior gonorrheal urethritis. Abortive therapy has been aided in a somewhat limited experience. It is in the chronic or subacute inflammations that the better results have been attained.

In the involvement of the posterior urethra, prostate and seminal vesicles, either acute or chronic, diathermy has given brilliant results. In these conditions, previously almost beyond the remedial measures of the attending physician, diathermy has proven itself. Dr. Michel stated that since using diathermy, he has had no occasion to intervene surgically for any complication of posterior gonorrhea.

The results in treatment of women with gonorrhea by diathermy, particularly chronic infections have been excellent. A new instrument devised by the speaker controls endocervitis in two sessions.

The discussion disclosed much interest in this phase of urology in which Dr. Michel is a pioneer.

Virginia Midwifery

Of the 2,449,950 people that live in the state of Virginia, 771,950 reside in cities or towns of one thousand or over, leaving 1,678,000 to live in the small towns and in the country. More than two people live in the country of the state of Virginia to one in the large towns and cities.

The area covered by the cities and towns of over one thousand is approximately 464 square miles, leaving approximately 41,000 square miles for the rest of the state. One thousand six hundred twenty-four doctors live in cities and towns of over 1000, while 807 doctors supply the rest of the state. In the cities and towns there is one doctor to 469 people, while in the country there is one doctor to 2079. In spite of the handicap of few doctors and great distances to travel, the doctors of the state during 1926 delivered 68.2 per cent of the women, while the midwives accounted for 31.8 per cent.

THE WEST VIRGINIA MEDICAL JOURNAL

JAMES R. BLOSS, *Editor-in-Chief* - - - - - Huntington

...ASSOCIATE EDITORS...

J. HOWARD ANDERSON
Marytown

WALTER E. VEST
Huntington

C. A. RAY
Charleston

HARRY M. HALL
Wheeling

THE JOURNAL issued on the first of each month. Entered as second-class matter, January 1, 1926. Acceptants for mailing at special rate of postage provided for in Section 1103, Act of October 3, 1917. Authorized July 24, 1919.

Subscription to Members	\$2.00 Per Year
Subscription to Non-Members	\$3.50 Per Year
Single Copies	50 Cents

OFFICERS

President:
C. A. RAY.....Charleston

First Vice-President:
D. G. PRESTON.....Lewisburg

Second Vice-President:
E. L. ARMBRECHT.....Wheeling

Third Vice-President:
W. C. SWANN.....Huntington

Executive Secretary:
MR. JOE W. SAVAGE.....Charleston

Treasurer:
T. MAXFIELD BARBER.....Charleston

Delegates to A. M. A.:
JAMES R. BLOSS (1927).....Huntington
HENRI P. LINSZ (1927-28).....Wheeling

Alternates:
A. A. SHAWKEY (1927).....Charleston
HARRY M. HALL (1927-28).....Wheeling

COUNCILLORS

Chairman of the Council for 1928:
R. H. DUNN.....South Charleston

First District:
H. R. JOHNSON (1-year term).....Fairmont
C. G. MORGAN (2-year term).....Moundsville

Second District:
C. H. MAXWELL (1-year term).....Morgantown
C. H. HALL (2-year term).....Elkins

Third District:
JOHN FOLK (1-year term).....Bridgeport
I. D. COLE (2-year term).....Clarksburg

Fourth District:
J. E. RADER (1-year term).....Huntington
W. E. VEST (2-year term).....Huntington

Fifth District:
J. HOWARD ANDERSON (1-year term).....Marytown
H. G. STEELE (2-year term).....Bluefield

Sixth District:
R. H. DUNN (1-year term).....South Charleston
H. A. WALKUP (2-year term).....Mt. Hope

¶ All original articles for THE JOURNAL must be made to it exclusively. Communications and items of general interest to the profession are invited from all parts of the state. Notices of deaths, removals from the state, changes of location, etc., are requested.

¶ Our readers are requested to send marked copies of local newspapers containing matters of interest to members of the medical profession. Name of sender should be given.

CONTRIBUTIONS TYPEWRITTEN

¶ Contract with present printer specifies all articles, communications, etc., MUST BE TYPED.

ADVERTISEMENTS

¶ Advertising forms will go to press not later than the tenth of each month. All advertisements must conform to the standard established by the Council of Pharmacy and Chemistry of the A. M. A.

WOMAN'S AUXILIARY

Mrs. R. V. Shanklin, Gary, President; Mrs. T. H. Harris, Parkersburg, vice-president; Mrs. W. C. Swann, Huntington, secretary; Mrs. W. D. Simmons, Slab Fork, treasurer.

Councillors

Mrs. C. G. Morgan, Moundsville, first district; Mrs. Ralph Maxwell, Morgantown, second district; Mrs. H. D. Price, Parkersburg, third district; Mrs. J. R. Bloss, Huntington, fourth district; Mrs. A. G. Rutherford, Welch, fifth district; Mrs. E. S. DePuy, Beckley, sixth district.

Delegates to Woman's Auxiliary of A. M. A.

Mrs. R. V. Shanklin, Gary; Mrs. B. S. Preston, Charleston. Alternates—Mrs. George Jeffers, Parkersburg; Mrs. W. B. Scherr, Morgantown.

STANDING COMMITTEES

Medical Defense Committee

R. H. Dunn, South Charleston, chairman; C. G. Morgan, Moundsville; I. D. Cole, Clarksburg.

Committee on Scientific Work

R. U. Drinkard, Wheeling, chairman; O. B. Biern, Wheeling; A. H. Hoge, Bluefield.

Public Policy and Legislative Committee

R. A. Ireland, Charleston, chairman; R. H. Walker, Charleston; James McClung, Richwood; C. R. Ogden, Clarksburg, D. A. MacGregor, Wheeling.

Committee on Medical Education

John N. Simpson, Morgantown, chairman; W. T. Henshaw, Charleston; W. S. Fulton, Wheeling.

Committee on Professional Relations

John R. Shultz, Charleston, chairman, (1-year term); A. G. Rutherford, Welch, (2-year term); W. R. Goff, Parkersburg, (3-year term); Hugh G. Nicholson, Charleston, (4-year term); E. P. Smith, Fairmont, (5-year term)

Workman's Compensation Committee

W. A. MacMillan, Charleston, chairman; J. Ross Hunter, Charleston; R. H. Walker, Charleston.

Committee on Public Health

David Littlejohn, Charleston, chairman; John Thames, Charleston; Will McLain, Wheeling.

Surgical Section


Wade H. St. Clair, Bluefield, chairman; John E. Cannaday, Charleston, secretary.

Eye, Ear, Nose and Throat Section


E. C. Hartman, Parkersburg, chairman; I. D. Cole, Clarksburg, secretary.

Hospital Association Officers

H. F. Spillers, Wheeling, president; L. W. Lawson, Logan, president-elect; J. E. Wilson, Clarksburg, first vice-president; R. A. Ireland, Charleston, second vice-president; J. S. Turk, Wheeling, treasurer.



EDITORIALS



X-ray Electrocutation

Within the past few years there has been a noticeable increase in the number of electrical deaths due to X-ray apparatus,—if we are to believe newspaper reports. That this is true, there is little doubt. There is of course, a great deal more X-ray equipment in the world today, than ever before, which naturally increases the number of the sources of danger. All X-ray apparatus operates at comparatively high voltage. Even the small, portable, bedside X-ray machine is capable of producing 87,000 peak volts. That there is a potential source of electric danger, when operating such apparatus cannot be denied. If the current from such a machine comes in contact with an individual and remains there for a few seconds, a severe burn or electrocution is likely to occur. It is quite apparent that many general practitioners, who endeavor to do their own X-ray work, fail to realize these dangers. Needless to state, X-ray salesmen do not emphasize them when selling equipment. As we have stated in these columns several times radiology has so many pitfalls in its path, that it is now considered a distinct specialty to be practiced only by those physicians who devote the major portion of their time to its study. There is little real need for physicians, not specializing in radiology, making large financial investments in X-ray equipment, thereby increasing the number of sources of X-ray dangers.

The owning of X-ray apparatus no more qualifies a physician as a radiologist, than the owning of surgical instruments makes one a surgeon.

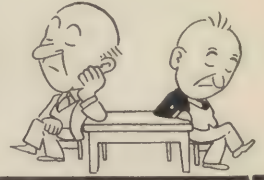
“Unfortunately, however, for the general practitioner, the so-called ‘taking of the picture,’ while necessary, does not constitute the whole X-ray examination. The most

important part of such an examination is the proper interpretation of the various shadows seen on the fluoroscopic screen and the roentgenogram. Obviously, there is no more short cut to master roentgen interpretation than there is to master surgery, both require much time and patience and above all, study and years of actual experience. Hence, no matter how cheap X-ray apparatus may become, or how simple to operate, the competent radiologist can never be successfully supplanted any more than the competent eye, ear, nose and throat specialist. Physicians must remember that the average radiologist does more X-ray work in one week than the average general practitioner who owns one of these bedside X-ray outfits, does in a year. From fifty to several hundred times as much experience each year is bound to make a great deal of difference in skill, value of opinions, etc.”

One of the remedies therefore, to lessen the number of electrical deaths from X-rays is, to decrease the number of sources of X-ray dangers by discouraging physicians in general practice from purchasing X-ray equipment. A device that is so potential for harm (not only the electrical dangers, but the more serious results from over-exposure) should only be operated by or under the direct supervision of one who understands its dangers—and that is the business of the trained radiologist. If general practitioners would spend more of their spare time (if they have any) on physical diagnosis, history taking, symptomology, etc., instead of trying to master the intricacies of radiology, patients would receive a much better type of medical service. The trouble is, that too many of us are endeavoring to do too much, and as a result, the patient is the one who must suffer.—*Harold Swanberg, M.D., F.A.C.P., in The Radiological Recorder.*



NEWS NOTES OF COMPONENT SOCIETIES



Marshall County

The December meeting of the Marshall County Medical Society was held in the Hotel Kreglow, Moundsville, on Tuesday evening, December 13. Officers elect for the new year were Dr. C. G. Morgan of Moundsville, president; Dr. J. E. Cooper, Cameron, vice president; Dr. J. H. Luikart, Moundsville, secretary, and Dr. O. P. Wilson, Moundsville, treasurer.

Delegates to the state convention to be held in Fairmont next May will be Dr. B. F. Bone and Dr. D. B. Ealy, both of Moundsville. The alternates selected were Dr. J. A. Striebich of Moundsville and Dr. J. W. Niedermeyer of Benwood.

The meeting was featured by a paper on gall bladder by Dr. W. S. Fulton of Wheeling who was followed by Dr. William K. Kalbfleisch, also of Wheeling, with an illustrated lantern slide demonstration of the removal of gall bladder. Dr. David Littlejohn of Charleston gave an interesting talk on the work of the state public health department.

Members present at the meeting were Dr. C. G. Morgan, Dr. D. B. Ealy, Dr. B. F. Bone, Dr. M. J. Fortney, Dr. W. C. Whistler of Smithfield, Dr. J. W. Corcet of Moundsville, Dr. L. H. McCuskey of Moundsville, Dr. J. A. Striebich, Dr. C. R. McGuffie of McMechen, Dr. O. P. Wilson of Moundsville, Dr. J. W. Niedermeyer of Benwood, and Dr. John H. Luikart of Moundsville.

D. B. EALY, *Secretary*.

Ohio County

The November meeting of the Ohio County Medical Society was held at the Elks Club, Wheeling, on the evening of Friday, November 18. The subject for the meeting, "Diagnosis and Treatment of Infantile Paralysis," was presented by Dr. George

J. Wright and Dr. C. C. Yount, both of Pittsburgh. The discussion was carried on by Dr. J. T. Thornton and Dr. J. O. Rankin of Wheeling.

The meeting was very successful and a large attendance turned out to hear the two Pittsburgh doctors.

H. W. BOND, M. D., *Secretary*.

Parkersburg Academy

Dr. R. H. Paden, formerly secretary of the Academy of Medicine of Parkersburg, was elected as president of the Academy at the monthly meeting held on December 1. He assumed the duties of his new office beginning with the present year.

Other officers elected at the December meeting of the Academy were Dr. H. M. Campbell of Parkersburg, vice president, and Dr. J. T. Goff of Parkersburg, secretary and treasurer. The four directors elected were Dr. Paul Starkey of Ravenswood, Dr. B. O. Robinson of Parkersburg, Dr. E. C. Hartman of Parkersburg and Dr. R. H. Paden of Parkersburg.

Tri-County Meeting

The Tri-County Medical Society, composed of Harrison, Marion and Monongalia counties, held its final 1928 meeting at the Hotel Waldo, Clarksburg, on December 8. The members of the Harrison County Medical Society played host to the visiting physicians and surgeons and one of the best gatherings of the year was reported.

The Tri-County meeting, which opened with a banquet at 6 o'clock, was featured by a splendid paper on goitre read by Dr. Andre Crotti of Columbus, O., who was present at the invitation of the Harrison society. The discussion of Dr. Crotti's paper was opened by Dr. William Goff of Parkersburg and a number of the members

vention were Drs. W. L. Thomasson, Dr. E. of the association took part. Dr. Crotti's paper was illustrated with lantern slides.

Following their usual custom, a dance was sponsored by the Harrison society for the visiting members and their wives and followed the scientific program.

Harrison County

Dr. Americus J. Kemper of Lost Creek was elected president of the Harrison County Medical Society for 1928 at a meeting of that organization held at the St. Marys Hospital, Clarksburg, on December 1. Other officers elected were Dr. Eugene B. Wright of Clarksburg, vice president, Dr. B. S. Brake of Clarksburg, secretary, Dr. Earl Allen Teets of Clarksburg, treasurer, and Dr. Roscoe J. Nutter of Clarksburg, censor. Delegates elected to the state convention were Drs. W. L. Thomason, E. B. Wright, A. J. Kemper and B. S. Brake.

The scientific program was opened by Dr. H. H. Haynes of Clarksburg, who delivered an address on "Gall Bladder Disease." Discussion on this paper was led by Dr. Chester R. Ogden, president of the state association.

There were thirty-nine members of the Harrison County society present at the December meeting and one visitor, Dr. Joe Carder of Salem, W. Va.

Barbour-Randolph-Tucker

Dr. W. E. Whiteside of Parsons was elected as president of the Barbour-Randolph-Tucker County Medical Society at the meeting of that organization held at the Hotel Tygart, Elkins, on the evening of November 22. Other officers selected for the coming year were Dr. C. B. Williams of Philippi and Dr. C. H. Hall of Elkins, vice presidents, and Dr. J. C. Irons of Horton was re-elected secretary-treasurer.

The scientific program of the November 18 meeting consisted of a talk on "The Characteristics of Tubercular Sputum," by Dr. L. P. Haslam of Elkins, "Impressions of Chicago Clinics," by Dr. B. I. Golden of Elkins, and "Impressions of New York

Clinics," by Dr. C. B. Williams and Dr. W. E. Whiteside.

A number of important business matters were disposed of by the Barbour-Randolph-Tucker society, including a resolution which provided for the election of three members to act in conjunction with the president and secretary as an executive board. The members elected to this board were Dr. A. P. Butt of Elkins, Dr. Guy H. Michaels of Norton and Dr. S. G. Moore of Elkins. Dr. E. M. Hamilton of Belington was elected censor for Barbour county.

J. C. IRONS, *Secretary*.

Fayette County

Dr. H. A. Walkup of Mt. Hope was re-elected president of the Fayette County Medical Society at the regular monthly meeting on December 13. Other officers elected to serve during the coming year were Dr. Ralph Hogshead of Carbondale, first vice president; Dr. E. E. Jones of Mt. Hope, second vice president; Dr. G. G. Hodges of Kilsythe, third vice president, and Dr. G. A. Smith of Montgomery, secretary-treasurer.

Delegates to the state convention at Fairmont next May were also elected at the December 13 meeting. They were Dr. Smith, Dr. S. W. Price of Scarbro and Dr. M. C. Borman of Montgomery. Alternates selected were Dr. M. A. Moore of Kingston, Dr. Claude Frazier of Powellton and Dr. E. E. Jones of Mt. Hope.

Mercer County

The Mercer County Medical Society held its regular monthly meeting in the Directors' room of the Municipal building, Bluefield, on November 17, with President M. M. Mastin presiding. A number of business matters were disposed of, including action upon a proposed anti-vivisection bill to be introduced at the present session of congress.

The scientific program was opened by Dr. Charles M. Scott of Bluefield, who reported an interesting case of a ten months' abdominal pregnancy together with other cases

from St. Luke's Hospital, Bluefield. Dr. Scott's paper was discussed by Dr. H. G. Steele and Dr. T. E. Vass.

Dr. Frederick Black of Bluefield followed Dr. Scott with a paper on "Aims and Benefits of Arthodontic Treatment." Dr. Black gave an excellent talk and demonstration of 55 plaster casts. Dr. Wade H. St. Clair of Bluefield gave a report of a case of mesenteric thrombus and the program was concluded with a report of four cases of food poisoning by Dr. M. W. Sinclair of Bluefield. Dr. Sinclair's paper was discussed by Dr. A. H. Hoge and Dr. F. J. Fox.

Those present at the meeting were Dr. Frederick Black, Dr. E. M. Tanner, Dr. W. C. Slusher, Dr. J. F. Fox, Dr. F. J. Collison, Dr. S. J. Kell, Dr. J. G. Bishop, Dr. D. B. Lepper, Dr. Fred Holroyd, Dr. E. W. Horton, Dr. W. H. St. Clair, Dr. H. G. Steele, Dr. M. N. Mastin, Dr. C. M. Scott, Dr. T. E. Vass and Dr. A. E. Amick.

H G. STEELE, *Secretary.*

Greenbrier Valley

Dr. C. F. Mahood of Alderson, former secretary of the Greenbrier Valley Medical Society, was elected president of the society at the last annual meeting held at the Hotel Alderson on December 15. Other executives of the society elected were Dr. H. L. Beard of Lewisburg, vice president, and Dr. J. G. Leach of Quinwood, secretary-treasurer. Dr. O. P. Argabright, Dr. D. G. Preston and Dr. W. E. Myles were selected as censors of the society and Dr. J. W. DeVebre, Dr. T. L. Gilchrist and Dr. N. R. Price were elected on the committee on public health and legislation.

Dr. Mary B. Harris, superintendent of the Federal Industrial Institution for Women at Alderson, was the principal speaker on the evening's program, which followed a dinner at 7 o'clock. Dr. Harris was introduced by Dr. Mahood, who spoke of her as a new doctor of philosophy recently arrived in the Greenbrier valley. He pointed out that it was her aim by precept, example and environment to reform and return the erring daughters of Eve back to society as useful and upright citizens, and said that the hard-

headed cynical doctors wished her God-speed.

In a brief and interesting way, Dr. Harris told of the objects and aims of the federal institution which occupies five hundred acres of land just west of the town of Alderson. When completed the prison will be able to take care of more than 500 women, although only about 100 are now confined there. All of the buildings are on the cottage pavillion plan and a 50-bed hospital is now under construction, which will be in charge of a woman physician. Dr. Harris said that discipline would be carried out without the use of iron bars.

The members and visitors to the society made a short tour of inspection through the new institution.

Kanawha County

Dr. W. W. Point of Charleston was elected president of the Kanawha Medical Society at the final 1928 meeting held at the Hotel Kanawha, Charleston, on the evening of December 20. Dr. Point will succeed Dr. R. H. Dunn of South Charleston, whose term of office as president expired on January 1. Dr. J. R. Shultz of Charleston was elected secretary-treasurer of the society.

Other officers chosen at the December 20 meeting were Dr. J. A. Arbuckle, Charleston, first vice president, Dr. W. B. Wilson, Charleston, second vice president and Dr. E. F. Gott, Charleston, censor.

The meeting was attended by about 35 members and was followed by a buffet luncheon. There was no scientific program.

Dr. Cole Is Ill

Dr. I. D. Cole of Clarksburg, councillor of the Third district of the West Virginia State Medical Association and secretary of the section on eye, ear, nose and throat, has recently gone to Tucson, Arizona, for his health. Dr. Cole has been in ill health for several months and it is hoped that the new climate in the southwestern city will restore him to health within a short time.

Dr. Cole has long been an active worker in the state association and his many friends in West Virginia wish him a speedy recovery.

GENERAL NEWS



DR. C. A. RAY

of Charleston (left) who assumed his duties as president of the West Virginia State Medical Association on January first.

+ +

DR. C. R. OGDEN

of Clarksburg (right) former president of the West Virginia State Medical Association, who has just turned over the reins to Dr. Ray.



Dr. Ray Takes Office

In assuming the duties of President of the Association for 1928, I solicit the support and cooperation of every member of the Association in the year's work before us. I am a great believer in organization, and to that end I hope to be able to visit every component society in the state during my incumbency. I hope no member of the Association will hesitate to call upon me for any service in my power. Reputable physicians not affiliated will receive earnest consideration of their wants, and we will be glad to hear from them.

It is our ambition to fulfill the traditions of our old masters by being progressive and making our intercourse a real fellowship.

Fraternally,

C. A. RAY.

Farewell Remarks

To the members of the West Virginia State Medical Association: I believe we can look back on the year of 1927 and say that it was the biggest and best one that the West Virginia State Medical Association has ever had. This should be, for it has been the result of many years of untiring effort on the part of its membership to elevate the profession in West Virginia. Each year should find the Association farther advanced and more successful than the previous one.

The end of 1927 shows our finances in good condition. We have worked out a very good schedule of fees with the new Workmen's Compensation Commissioner; we were fairly successful with the last legislature; we have put across some very creditable publicity throughout the state in the interest of the profession and the public; we have considerably built up the membership, adding nearly 90 new members to the Asso-

ciation; we have placed about half a hundred physicians in new positions; we have brought the *West Virginia Medical Journal* up to a sound financial basis so that for the first time it is turning quite a sum of money into the Association; and, we have done many other things for the benefit of the profession in West Virginia. As your retiring President, I desire to say that 1927 has been full of joys and pleasures for me. Being honored by you with the highest gift in the profession of the state, I have been permitted the opportunity for greater service.

The success to which the Association has attained at the close of 1927, could only have come by the unstinted, and untiring support I have received from its faithful members.

To each of the other officers, the council, the various committees, the editorial staff of *The Journal*, the executive office, and to the entire membership of the Association, I am deeply grateful for their help and support. As I retire to the ranks of the profession in West Virginia and turn over to our new President, and my worthy successor, Dr. C. A. Ray, the affairs of the Association, I do so with every assurance that the faithful support you have given me, will be given him even in more abundant measure.

With every good wish to each member of the State Association for a prosperous and happy New Year, I am,

Faithfully yours,

CHESTER R. OGDEN.

COMMUNICATIONS

Anterior Poliomyelitis

Since the appearance of the article on the migrating birds, as a probable cause of Acute Anterior Poliomyelitis, in the November issue of the *West Virginia Medical Journal*, the writer has been receiving letters from different sections of the country. Some are very cordial and sympathetic, others accusing me of being a seeker of notoriety. Some think I am interested in a serum to be boosted on the public. Some think I am an enemy of birds, etc., etc., etc.

I want to assure my friends that I have no other motive, than to get a thorough investigation along the lines of probable infection, as stated in my former article. There are a few things to which I wish to call your attention. One is the fact that birds do have paralysis in one or both wings or feet. If one wing or one or both feet are paralyzed, they will come to the ground unable to walk or fly. If only one leg is paralyzed, they will fly in the trees with one foot dangling but will keep on the wing. Another fact is, these birds can be confined with chickens and so long as the droppings from the diseased birds are not eaten they will not take the disease. If the droppings are mixed with the food and eaten by the chickens, they will have the same disease with similar symptoms of paralysis. These symptoms are identical as those of the paralyzed child. These facts are true now and in time will be accepted as such. In support of the theory that it is transmitted to the child, I wish to report the following case, which was referred to me by Dr. J. A. Striebich of Moundsville, W. Va.:

Case—William Cotton, age 8 years, son of Frank Cotton, 60 Fifth street, Glendale, W. Va. Child took sick October 15, 1927 with infantile paralysis. Both legs partially paralyzed. Unable to walk or stand alone. One week prior to taking sick, he with other boys found a paralyzed robin under a tree. He took the bird home and kept it two days. The father was sure the wings or legs were not broken and could not understand why it was paralyzed. Dr. P. D. Barlow, McMechen, W. Va., is the attending physician. Any of these people will verify the above statements. Should there be any other physicians having similar cases, please make it known as it will help to strengthen the theory and encourage investigation along this line. I wish to thank Mr. J. H. Johnston of Bird Haven, South Hills, Charleston, W. Va., for his letter of inquiry and valuable information given on his observations of paralyzed birds. Also, to thank Dr. E. W. Saunders of St. Louis, Mo., for the literature sent me on the larvae of the green fly which causes limber neck among chickens and paralysis in other animals. Dr. Saun-

ders is of the opinion that it is the larvae of the green fly that is the cause of infantile paralysis. I had not thought of limber neck in chickens from eating magots and dead carcasses as being the same as the paralysis observed among the birds and chickens, but I concede that they may be types of one and the same disease.

Many physicians believe that acute cerebro spinal meningitis, Laundry's paralysis and acute anterior poliomyelitis are types of the same disease, so it may prove that the fly is the cause of the bird paralysis. In closing, I wish to say, I believe, this is an infectious disease among the birds and children, consequently you will find very few paralyzed birds in a flock. It is only on an occasional year we see them and if it is at the time of the year the birds are migrating and the fruit is ripening, there will be an epidemic of paralysis among children.

LAVERTY H. MCCUSKEY, M. D.

Hospital Convention

Dr. L. W. Lawson of Logan was elected as the new president of the Hospital Association of West Virginia at the second annual meeting held at the Kanawha Hotel, Charleston on December 5. Dr. H. F. Spillers of Wheeling, the present head of the organization, will continue in office until January 1, 1928, when he will be replaced by Dr. Lawson.

Other officers selected by the state hospital association were Dr. J. E. Wilson of Clarksburg as first vice president, Dr. R. A. Ireland of Charleston as second vice president, and Mr. J. S. Turk of Wheeling as treasurer. Mr. Joe W. Savage of Charleston was retained as executive secretary.

The meeting in Charleston was very successful in every way and approximately fifty members and associate members were registered for the session. The meeting was featured by an address by Mr. C. L. Heaberlin, workman's compensation commissioner of West Virginia, who outlined his future plans and promised the utmost co-operation between his department and the hospitals in the state.

The second annual gathering of the West Virginia hospital heads was also featured by a visit from Dr. Allan Craig of New York City, a former visitor for the American College of Surgeons. Dr. Craig talked both at the afternoon session and at the convention banquet.

Other speakers who were on the hospital meeting program were Governor Howard M. Gore, Mayor W. W. Wertz of Charleston, Dr. H. M. Hall of Wheeling, Dr. C. A. Ray of Charleston, Dr. John E. Cannaday of Charleston, Dr. L. W. Lawson of Logan, Dr. C. R. Ogden of Clarksburg, Dr. O. B. Biern of Huntington, Dr. J. R. Shultz of Charleston and Dr. R. U. Drinkard of Wheeling.

Dr. Arbuckle Moves

Dr. J. A. Arbuckle of Charleston, who has been associated with Dr. V. T. Churchman in his private hospital since May, 1919, has completed arrangements and will move to Richmond, Ky., the first of this year. At his new location, Dr. Arbuckle will be in charge of the Eye, Ear, Nose and Throat section in the Pattie A. Clay Memorial hospital at Richmond and will be associated with Dr. M. M. Robinson, chief surgeon of the institution.

The hospital to which Dr. Arbuckle will be attached in Kentucky was recently enlarged by the residents in that community and has a complete X-ray and clinical laboratory equipment.

Exploiting Doctors

Leading physicians throughout the country resent the implication that the medical profession has endorsed the preferential use of a certain brand of cigarettes as a cure or alleviative of throat irritation and for voice protection. In letters to the *Medical Review of Reviews*, which undertook a survey of leading physicians throughout the country to expose misleading advertising, physicians express their resentment and urge the public to be on its guard against accepting endorsements by a small minority as the authentic opinion of the 140,000 physicians of this country.

The physicians among whom the survey was conducted were asked two questions by the *Medical Review of Reviews*. The first was: "Do you not agree with us that it is impossible for one cigarette to have any advantage over all others in regard to throat ease or irritation?" to which the answer was almost unanimously "Yes." The second was: "Is it not your observation that there is no scientific reason for preference for any given cigarette and that any preference is on a taste basis?" to which the answer was almost unanimously "Yes."

C. L. Woodbridge, M. D.

Dr. C. L. Woodbridge has recently joined the staff at the Coal Valley Hospital and Clinic at Montgomery, W. Va. A graduate of Princeton University and Johns Hopkins Medical School, after a residency at the Presbyterian Hospital in Philadelphia, he spent four and one-half years as a medical missionary in China. He has returned to America with his family because of the military situation in China. Dr. Woodbridge is doing general practice in Montgomery, and obstetrics at the Coal Valley Hospital.

Henry G. Wildman, M. D.

The announcement of the death of Dr. Henry G. Wildman on August 26 was received with profound regret by the people of West Virginia who had met him during the past two years in connection with his work as field clinician for Hopemont Sanitarium and the state association.

Letters from many counties visited by him contain appreciative comment regarding his kindly personality, his gentlemanly bearing, his professional skill and his ability as a public speaker. As one who was closely associated with him has expressed it, "He was an unusual combination of efficiency, tact and good judgment and advanced the work far."

Dr. Wildman came to West Virginia for field work in September, 1925, after an experience of ten years on the medical staff of the Lake Forest Sanatorium near Chicago. Up to August 12, 1927, he had visited 42 counties, some of them frequently, had con-

ducted 282 clinics, had examined over 6700 persons and had diagnosed over 1100 as tuberculosis. Many were influenced to seek sanatorium treatment as a result of his advice.

Dr. Wildman left West Virginia about August 14 to spend a vacation with his family in Illinois and Minnesota. He was expecting to return early in September and clinics had been scheduled for him in Mercer county. Apparently in good health, his vitality became weakened by a chronic stomach condition and he died following an operation from which he hoped to find relief. —*The Healthfinder*.

Improved Treatment

Treatment of infantile paralytics by muscle exercises given in a pool of water, instead of on a bed or other flat surfaces, which has been the usual procedure, seems to be a more effective method, and accordingly pool facilities and treatment for poliomyelitis convalescents now are being offered in a number of cities throughout the country, according to a statement made public by the Public Health Service November 22, based on a report from the New York State Department of Health.

The full text of the statement follows:

Evidence continues to accumulate that the improvement in muscle development in poliomyelitis cases, after all acute symptoms have subsided, goes forward much more rapidly if the muscle exercises prescribed by an orthopedic surgeon are given in a pool instead of on a bed or other flat surface as has previously been the usual procedure.

Opinions seem to differ as to whether this result is due entirely to the buoyant effect of the water, or whether the resistance of the water, its relaxing effect and the fact that a patient can take a much longer exercise period with less tiring are not all contributing factors.

Pool facilities and treatment for poliomyelitis convalescents are being offered in a number of different parts of the country, one at least being in New York state. One of the more recent ones is located at Warm Springs, Ga.—*U. S. Daily*.

WOMAN'S AUXILIARY



MRS. R. O. ROGERS
of Bluefield, president of the Mercer County
Woman's Auxiliary.

Joint Meeting Held

A joint meeting of the McDowell and Mercer County Medical societies was held at the West Virginia Hotel, Bluefield, on Tuesday evening, October 19. Dr. H. G. Steele of Bluefield was toastmaster and the address of welcome was delivered by Dr. M. M. Mastin, president of the Mercer society. The response was made by Dr. R. V. Shanklin of Gary.

The program for the banquet was presented by the members of the two auxiliaries, including vocal solos by Mrs. E. W. Horton, and Mrs. H. G. Steele of Bluefield and Mrs. W. B. Stephens of Eckman. A reading was given by Mrs. C. J. Reynolds of Bluefield. Mrs. B. S. Preston of Charleston, president of the state auxiliary, gave



MRS. WADE H. ST. CLAIR
of Bluefield, a prominent member of the Mercer
Auxiliary and of the state organization.

an interesting talk on the organization and what it has accomplished during the past year.

Following the banquet, a joint business session of the two auxiliaries was held. Mrs. R. V. Shanklin, president of the McDowell society, was in charge of the program. Mrs. L. W. Peck of Coalwood, read a splendid paper on "The Life and Work of Walter Reed," and Miss Helen Fair, public health nurse, gave an instructive talk concerning her work.

McDowell Dinner Dance

The McDowell County Medical Society entertained with a dinner dance at the McDowell Country Club on the evening of Friday, October 28, in honor of the Mercer county society.

MEMBERSHIP IN 1927

Below will be found the names of all members of the West Virginia State Medical Association who have paid their dues during the year, 1927. There are 1,035 names on the list and of this number there are 90 new members. The total membership at the present time is just about the same as it was on December 20, 1926 and practically the only increase shown is in the number of new members, which has almost doubled.

At the end of the membership list

are the names of the delinquent members of the association for 1927. We respectfully urge that every Journal reader look over the list of delinquents and if any mistakes are noted, kindly notify the office of the executive secretary at once.

May we ask the secretaries of the various component societies to check over the list of members and delinquents very carefully for errors? And then let's dig in and make the year 1928 the biggest and best one that the state association has ever known.

Barbour-Randolph-Tucker Society

H. H. Bolton, Pierce
A. S. Bosworth, Elkins
J. L. Bosworth, Mill Creek
Perry Bosworth, Huttonsville
A. P. Butt, Elkins
T. B. Crittenden, Kitzmiller, Md.
Guy N. Cromwell, Davis
R. J. Detrick, Elkins (moved; address unknown)
Wm. R. Dove, Harman
Ben I. Golden, Elkins
W. W. Golden, Elkins
G. A. Granger, Coketon
C. H. Hall, Elkins
E. M. Hamilton, Belington
W. G. Harper, Elkins
J. C. Irons, Horton
E. R. McIntosh, Elkins
Guy H. Michael, Norton
W. S. Michaels, Norton
J. L. Miller, Thomas
S. G. Moore, Elkins
H. K. Owens, Elkins
O. L. Perry, Elkins
W. Scott Smith, Philippi
C. G. Stroud, Browntown
Richard Talbott, Erwin
J. M. Teter, Century

W. E. Whiteside, Parsons
C. B. Williams, Philippi
T. M. Wilson, Elkins

Brooke County Society

G. W. Abersold, Beech Bottom
J. R. Arnold, Follansbee
L. J. Bernstein, Wellsburg
W. T. Booher, Wellsburg
R. L. Focer, Colliers
Leo Huth, Follansbee
F. L. Matson, Wellsburg
J. S. McCullough, Follansbee
W. J. McDonald, Wellsburg
J. P. McMullen, Wellsburg
Harry Frederick Nolte, Beech Bottom
J. C. Schulz, Wellsburg

Cabell County

James H. Baber, Huntington
W. F. Beckner, Huntington
O. B. Biern, Huntington
J. R. Bloss, Huntington
R. M. Bobbitt, Huntington
F. E. Brammer, Dehue
H. A. Brandebury, Huntington
B. F. Brown, Huntington
W. F. Bruns, Ceredo
C. M. Buckner, Huntington
A. W. Crews, Huntington

D. J. Cronin, Huntington
J. W. Ferguson, Kenova
C. P. S. Ford, Huntington
J. C. Ford, Huntington
B. D. Garrett, Kenova
A. P. Gibson, Huntington
J. A. Guthrie, Huntington
L. V. Guthrie, Huntington
J. Carney Hardman, Huntington
R. Hardwick, Huntington
H. D. Hatfield, Huntington
C. M. Hawes, Huntington
J. S. Hayman, Huntington
W. D. Hereford, Huntington
I. C. Hicks, Huntington
O. T. Hines, Huntington
I. I. Hirschman, Huntington
F. C. Hodges, Huntington
F. J. Hoitash, Huntington
J. E. Hubbard, Huntington
B. L. Hume, Huntington
W. B. Hunter, Huntington
G. D. Johnson, Huntington
Arthur S. Jones, Huntington
A. T. Jordan, Hurricane
W. C. Kappes, Huntington
J. R. Keesee, Huntington
A. D. Kessler, Huntington
J. C. Kessler, Hamlin
J. S. Klumpp, Huntington

C. A. Latham, Huntington
 W. M. Lewis, Huntington
 H. V. Lusher, Huntington
 Geo. M. Lyon, Huntington
 A. R. MacKenzie, Huntington
 C. H. Malcolm, Huntington
 F. O. Marple, Huntington
 H. B. Martin, Huntington
 J. C. Mathews, Huntington
 I. W. Mayberry, Huntington
 W. C. McGuire, Huntington
 E. N. Miller, Huntington
 M. B. Moore, Huntington
 T. W. Moore, Huntington
 Lon C. Morrison, Milton
 D. E. Musgrave, Barboursville
 Nathan Poliakoff, Huntington
 K. C. Prichard, Huntington
 J. E. Rader, Huntington
 J. W. Rife, Kenova

Noah Rouse, Big Creek
 W. N. Rowley, Huntington
 F. X. Schuller, Huntington
 E. E. Shafer, Huntington
 R. M. Sloan, Huntington
 W. R. Spencer, Barboursville
 J. H. Steenbergen, Huntington
 W. W. Strange, Huntington
 W. C. Swann, Huntington
 C. T. Taylor, Huntington
 I. W. Taylor, Huntington
 W. C. Thomas, Huntington
 R. S. Van Meter, Huntington
 Walter E. Vest, Huntington
 R. E. Vickers, Huntington
 L. T. Vinson, Huntington
 S. P. Walker, Huntington
 C. W. Warnock, Huntington
 A. J. Watts, Huntington
 R. J. Wilkinson, Huntington
 C. G. Willis, Huntington
 C. B. Wright, Huntington
 R. M. Wylie, Huntington
 A. B. York, Huntington

Central West Virginia Medical Society

S. P. Allen, Webster Springs
 W. P. Bittinger, Richwood (moved)
 G. O. Brown, Buckhannon
 H. S. Brown, Sutton
 D. G. Caudy, Tioga
 R. G. Cutright, Buckhannon
 L. W. Deeds, Buckhannon
 J. B. Doddrell, Webster Springs
 Hugh Dunn, Richwood
 O. O. Eakle, Sutton
 W. E. Echols, Richwood
 C. F. Fisher, Richwood
 E. S. Frame, Gassaway
 M. F. Gruber, Erbacon
 S. S. Hall, Buckhannon
 L. O. Hill, Camden-on-Gauey
 W. H. McCauley, Sutton
 M. T. Morrison, Sutton
 T. R. O'Rourke, Richwood
 L. W. Page, Buckhannon
 J. L. Pifer, Buckhannon
 J. A. Rusmisl, Buckhannon
 L. H. Trippett, Buckhannon
 H. O. Vantromp, French Creek
 Everett Walker, Adrian

Doddridge County Medical Society

Homer Freeman, Center Point
 A. M. McGovern, West Union
 A. Poole, West Union
 E. T. Wetzell, West Union

Eastern Panhandle Medical Society

A. O. Albin, Charles Town
 E. H. Bitner, Martinsburg
 James A. Duff, Martinsburg
 A. B. Eagle, Martinsburg
 Victor Glover, Martinsburg
 B. F. Haines, Charles Town
 W. T. Henshaw, Charleston
 C. C. Johnson, Harpers Ferry
 G. P. Morrison, Martinsburg
 T. K. Oates, Martinsburg
 F. M. Phillips, Charles Town
 Marvin H. Porterfield, Martinsburg
 Clifford Sperow, Martinsburg
 G. J. E. Sponseller, Martinsburg
 P. E. Stigers, Hancock, Md.
 H. G. Tonkin, Martinsburg
 W. A. Wallace, Martinsburg

Fayette County Medical Society

Templeton Adair, Mt. Hope
 Arthur E. Bays, Boomer
 F. W. Bilger, Mayberry
 Milton C. Borman, Montgomery
 J. C. Brown, Nallen
 W. E. Bruce, Beards Fork
 B. F. Brugh, Montgomery
 W. E. Bundy, Minden
 A. J. Burkholder, Layland
 M. E. Caldwell, Montgomery
 G. O. Crank, Lawton
 Thomas B. Daugherty, Fayetteville
 Claude Frazier, Powellton
 C. A. Gooch, Elkridge
 F. W. Groome, Elverton
 E. J. Grose, Fayetteville
 J. E. Hamner, Rainelle
 L. R. Harless, Glen Ferris
 W. N. Haynes, Victor
 O. J. Henderson, Montgomery
 G. G. Hodges, Kilsythe
 Gory Hogg, Harvey
 Ralph Hogshead, Carbondale
 J. W. Hopkins, Fayetteville
 L. G. Houser, Beckley
 J. E. Hughart, Landisburg
 A. L. Hunter, Pax
 E. E. Jones, Mt. Hope
 W. R. Laird, Montgomery
 Thos. A. Lamb, Montgomery
 R. L. Lee, Harvey
 C. W. Lemon, Claremont
 H. C. Martin, Rainelle
 J. A. McGraw, Cunard
 W. P. McIntosh, Longacre
 M. A. Moore, Kingston
 A. L. Morris, Jodie
 R. S. Peck, Cannelton
 S. W. Price, Scarbro
 B. Forest Puckett, Oak Hill
 C. F. Ridge, Thurmond
 G. W. Sandford, Concho
 J. S. Shaffer, Montgomery
 D. W. Shirkey, Montgomery
 G. W. Skaggs, Page
 H. C. Skaggs, Montgomery
 G. A. Smith, Montgomery
 W. A. Simpson, Charleston (Cap. Bldg.)
 J. M. Spinks, Mt. Hope
 J. F. Van Pelt, Oak Hill
 J. W. Walker, Winona
 H. A. Walkup, MacDonald
 J. B. Woodville, Lansing

Grant-Hampshire-Hardy-Mineral Medical Society

J. G. Abbott, Piedmont
 W. M. Babb, Keyser

Robert Bess, Piedmont
 O. V. Brooks, Moorefield
 H. F. Coffman, Keyser
 W. G. Drinkwater, Gorman
 V. L. Dyer, Petersburg
 J. F. Easton, Romney
 T. C. Giffen, Keyser
 George S. Gochenour, Moorefield
 J. B. Grove, Petersburg
 W. T. Highberger, Maysville
 S. B. Johnson, Franklin
 Z. T. Kalbaugh, Piedmont
 J. O. Lantz, Emoryville
 R. E. Lee, Wardsenville
 Robert W. Love, Moorefield
 E. B. Martin, Romney
 Maurice H. Maxwell, Keyser
 Glenn Moomau, Petersburg
 B. F. Moyers, Matthias
 J. A. Moyers, Franklin
 J. S. Offutt, Capon Bridge
 Arnold A. Scherr, Keyser
 Hugh Strachan, Blaine
 E. K. Wilson, Romney
 J. H. Wolverton, Piedmont
 M. F. Wright, Burlington

Greenbrier Valley Medical Society

Julian D. Arbuckle, Maxwellton
 O. P. Argabrite, Alderson
 H. L. Beard, Lewisburg
 W. C. Beard, Alderson
 A. E. Burner, Durbin
 C. R. Campbell, Williamsburg
 J. M. Cofer, Slaty Fork
 J. E. Coleman, Rupert
 J. W. Compton, Ronceverte
 J. W. DeVebre, Ronceverte
 A. D. Ferrell, Ronceverte
 T. L. Gilchrist, Pickaway
 H. L. Goodman, Ronceverte
 H. D. Gunning, Ronceverte
 U. H. Hannah, Cass
 H. W. Hogue, White Sulphur Springs
 E. W. Hoylman, Dorr
 Eleanor Hutchinson, Alderson
 J. A. Jackson, Ronceverte
 E. G. Kessler, Williamsburg
 H. L. Kirkpatrick, Marfrance
 J. G. Leech, Quinwood
 S. G. Love, Asheville, N. C.
 C. F. Mahood, Alderson
 R. H. McClung, Alderson
 S. A. McFerrin, Renick
 John F. Moriarity, White Sulphur Springs
 W. E. Myles, White Sulphur Springs
 D. G. Preston, Lewisburg
 N. R. Price, Marlinton
 L. D. Rupert, Frankford

Hancock County Medical Society

S. Beradelli, Weirton
 George H. Davis, Weirton
 A. L. Eisner, Weirton
 F. B. Harrington, Weirton
 I. Levendorf, Weirton
 George E. Lewis, Chester
 V. E. McDoldowney, Newell
 C. Moraitis, Weirton
 G. E. Papadopoulos, Weirton
 M. H. Powers, Weirton
 J. E. Richmond, Weirton
 George Rigas, Weirton
 A. B. Rinehart, Weirton
 L. O. Schwartz, Weirton
 C. A. Shafer, Chester
 L. A. Whitaker, Weirton

Harrison County Medical Society

C. T. Arnett, Clarksburg
 C. S. Bates, Lumberport
 B. S. Brake, Clarksburg
 E. H. Brannon, Bridgeport
 J. T. Brennan, Clarksburg
 S. L. Cherry, Clarksburg
 Eugene O. Chimene, Clarksburg
 C. C. Coffendaffer, Clarksburg
 I. D. Cole, Clarksburg
 J. E. Corbin, Clarksburg
 D. P. Cruikshank, Lumberport
 Louise J. Currence, Clarksburg
 Edward Davis, Salem
 W. M. Davis, Bridgeport
 C. R. DeForest, Clarksburg
 W. C. DeForest, Clarksburg
 H. H. Esker, Clarksburg
 A. O. Flowers, Clarksburg
 E. Newton Flowers, Clarksburg
 Earl N. Flowers, Clarksburg
 John Folk, Bridgeport
 William Gaston, Clarksburg
 William T. Gocke, Clarksburg
 L. C. Goff, Clarksburg
 O. S. Gribble, Clarksburg
 G. E. Halyama, Clarksburg
 W. P. Hammer, Lumberport
 Alex Hannah, R. F. D., Wilsonburg
 H. H. Haynes, Clarksburg
 R. A. Haynes, Clarksburg
 E. A. Hill, Clarksburg
 Robert C. Hood, Clarksburg
 Kenna Jackson, Wallace
 C. C. Jarvis, Clarksburg
 A. J. Kemper, Lost Creek
 O. W. Ladwig, Wilsonburg
 Frank V. Langfitt, Clarksburg
 D. Leeson, Clarksburg
 R. B. Linger, Lost Creek
 R. V. Lynch, Meadowbrook
 J. S. Malloy, Shinnston
 W. A. Marsh, Clarksburg
 B. F. Matheny, Clarksburg
 John P. McGuire, Clarksburg
 R. B. Nutter, Enterprise
 R. J. Nutter, Clarksburg
 C. R. Ogden, Clarksburg
 R. L. Osborne, Clarksburg
 W. T. Owens, Clarksburg
 J. E. Page, Clarksburg
 Edward Payne, Clarksburg
 J. B. Payne, Washington, D. C.
 C. R. Peck, Clarksburg
 E. Pendleton, Clarksburg
 A. T. Post, Clarksburg
 Cecil O. Post, Clarksburg
 S. H. Post, Lost Creek
 R. M. Riley, Nutter Fort
 Harry A. Rosenthal, Clarksburg
 Sylvia Saurborne, Clarksburg
 V. A. Selby, Clarksburg
 B. F. Shuttleworth, Clarksburg
 C. N. Slater, Clarksburg
 H. E. Sloan, Clarksburg
 W. L. Strother, Salem
 E. A. Teets, Clarksburg
 W. L. Thomason, Clarksburg
 E. D. Tucker, Nutter Fort
 J. Harold Underwood, Shinnston
 E. F. Wehuer, Clarksburg
 H. Allen Whisler, Clarksburg
 J. F. Williams, Clarksburg
 C. A. Willis, Charleston, (Vet's Bureau)
 E. A. Wilson, Salem
 J. E. Wilson, Clarksburg
 J. B. Winfield, Clarksburg

Eugent B. Wright, Clarksburg

Kanawha Medical Society

M. J. Alexander, High Coal
 A. L. Amick, Charleston
 Maury Anderson, Dunbar
 J. A. Arbuckle, Charleston
 O. L. Aultz, Charleston
 Ernest Ball, Charleston
 Bankhead Banks, Charleston
 D. N. Barber, Owens, W. Va.
 T. M. Barber, Charleston
 G. H. Barksdale, Charleston
 W. P. Black, Charleston
 B. V. Blagg, South Charleston
 O. H. Bobbitt, Charleston
 Andrew S. Boggs, Charleston
 R. J. Brown, Hookersville
 R. K. Buford, Charleston
 E. H. Campbell, Carbon
 L. M. Campbell, Eskdale
 J. E. Cannaday, Charleston
 G. B. Capito, Charleston
 G. C. Carson, Gassaway
 T. J. Casto, Charleston
 I. P. Champe, Charleston
 V. T. Churchman, Charleston
 C. E. Copeland, Charleston
 Edwin A. Davis, Charleston

DECEASED

Oscar Beer, Coral Gables, Fla.
 (Buckhannon)

William F. Boyers, Fairmont
 Florence B. Evers, Martinsburg
 S. R. Fairchild, Elkridge
 A. N. Frame, Parkersburg
 John E. Hyer, Curtin
 J. W. Livesay, Mt. Clair
 E. H. Martin, Harrisville
 George A. MacQueen, Charleston
 A. N. Osborne, Frum
 S. A. Pratt, ingwood
 C. L. Rohrbaugh, Belington
 W. E. Smith, Minden
 P. H. Swann, Huntington

M. L. Dillon, 1106 Va. St., Charleston
 Ross M. Dodson, Charleston
 J. L. Dunlap, Bancroft
 R. H. Dunn, South Charleston
 R. T. Ergenbright, University Hospital,
 University, Va.
 G. P. Fisher, Kayford
 C. A. Fieger, Seth
 Ralph J. Ford, Charleston
 Ray I. Frame, Charleston
 H. R. Glass, Charleston
 M. V. Godbey, McKendree
 M. D. Good, Charleston
 Fred Gott, Charleston
 J. H. Hansford, Pratt
 E. R. Hatfield, Charleston
 E. R. Hays, Chelyan
 E. Bennette Henson, Charleston
 David H. Hill, Charleston
 H. H. Howell, Danville
 J. Ross Hunter, Charleston
 R. A. Ireland, Charleston
 G. G. Irwin, Charleston
 L. A. Jarrett, Dunbar
 Ray Kessel, Charleston
 H. C. Kincaid, Mordue
 A. C. Lambert, Charleston
 R. H. Lewellyn, Putney

J. B. Lohan, Charleston
 Atlee Mairs, Charleston
 C. B. Marshall, Nitro
 W. A. McMillan, Charleston
 H. D. McPherson, Sharon
 M. I. Mendeloff, Charleston
 John W. Moore, Charleston
 Hugh C. Nicholson, Charleston
 J. T. Nolen, Ward
 R. O. O'Dell, South Charleston
 Charles O'Grady, Charleston
 D. F. Pauley, Jeffrey
 M. F. Petersen, Charleston
 L. A. Petty, Charleston
 S. H. Phillips, Charleston
 Walter W. Point, Charleston
 Owen Poling, Nellis
 F. G. Prather, Barrett
 B. S. Preston, Charleston
 Robert B. Price, Charleston
 James Putney, Charleston
 C. A. Ray, Charleston
 Roy Ray, Clendenin
 G. A. Rigrish, Charleston
 J. E. Roberts, Charleston
 G. C. Robertson, Charleston
 H. L. Robertson, Charleston
 W. S. Robertson, Charleston
 Hugh Robins, Charleston
 J. U. Rohr, Charleston
 R. D. Roller, Charleston
 G. C. Schoolfield, Charleston
 J. T. Sharp, Charleston
 A. A. Shawkey, Charleston
 W. S. Shepherd, Charleston
 J. R. Shultz, Charleston
 J. S. Skaggs, Seth
 J. W. Skaggs, Nitro
 A. A. Smith, Ivaton
 E. W. Smoot, Madison
 H. H. Staats, Charleston
 Robert R. Stuart, Bluefield
 B. H. Swint, Charleston
 W. E. Taylor, Mammoth
 John Thames, Charleston
 Hugh G. Thompson, Charleston
 W. A. Thornhill, Charleston
 A. C. Vandine, Charleston
 R. H. Walker, Charleston
 C. N. Watts, Marmet
 F. P. Weltner, Charleston
 Wirt B. Wilson, Charleston
 W. H. Wilson, St. Albans
 R. E. Woodall, Charleston

Lewis County Medical Society

T. R. Beggs, Weston
 G. M. Burton, Weston
 S. H. Burton, Weston
 E. R. Cooper, Troy
 M. D. Cure, Jr., Weston
 Cecil C. Denham, Weston
 W. H. Greene, Weston
 E. T. W. Hall, Weston
 O. L. Hudkins, Weston
 D. P. Kessler, Weston
 W. P. King, Weston
 T. F. Law, Weston (moved; left no
 address)
 A. F. Lawson, Weston
 G. R. Post, Weston
 Charles B. Rohr, Alum Bridge
 George Snyder, Weston

Logan County Medical Society

Z. M. Bardin, Lundale
 Roy A. Bell, Shegon
 C. A. Davis, Logan

H. H. Farley, Logan
 W. F. Farley, Holden
 S. J. Ferguson, Verdonville
 W. S. Gilmer, Henlawson
 K. J. Heatherman, Omar
 J. O. Hil, Logan
 V. E. Holcombe, Logan
 Augustus Holderfield, Man
 B. E. Hunt, Holden
 J. I. Justice, Logan
 L. W. Lawson, Logan
 C. A. Martin, Amhersdale
 O. G. McConnell, Blair
 John W. McNabb, Monaville
 F. L. Round, Holden
 W. S. Rowan, Logan
 C. G. Scruggs, Whitman
 L. E. Shrewsbury, Mallory
 L. E. Steele, Logan
 Mark Sutphin, Logan
 Nicholas Szucs, Logan
 W. J. Thomas, Taplin
 E. B. Thompson, Ethel
 J. H. Thornbury, Crites
 Harold VanHoose, Whitman
 R. R. Vanhugh, Dehue
 P. B. Wingfield, Logan

Marion County Medical Society

J. W. Ballard, Fairmont
 J. M. Barr, Middleton
 H. M. Batson, Fairmont
 L. B. Boyers, Fairmont
 G. H. Brownfield, Fairmont
 Hugh Carr, Fairmont
 Carl J. Carter, Fairmont
 J. B. Clinton, Fairmont
 James C. Collins, Fairmont
 W. L. Coogle, Rivesville
 H. L. Criss, Fairmont
 Luther C. Davis, Fairmont
 Dorsey P. Fitch, Fairmont
 F. E. Flowers, R.F.D. No. 6, Mannington
 Charles T. Francis, Cook Hosp., Fairmont
 D. D. Hamilton, Mannington
 M. F. Hamilton, Fairmont
 M. M. Hill, Fairmont
 C. O. Henry, Fairmont
 C. L. Holland, Fairmont
 L. H. Horton, Fairmont
 E. W. Howard, Fairmont
 L. D. Howard, Fairmont
 J. A. Jamison, Fairmont
 J. J. Jenkins, Farmington
 H. R. Johnson, Fairmont
 Philip Johnson, Fairmont
 H. S. Keister, Fairmont
 C. L. Kinney, Ida May
 W. H. Kunst, Fairmont
 C. S. Lawson, R.F.D., Fairmont
 Wm. J. Leahy, Mannington
 George R. Miller, Fairview
 T. H. Miller, Fairmont
 Phoebe G. Moore, Mannington
 G. V. Morgan, Fairmont
 L. D. Morris, Fairmont
 J. E. Offner, Fairmont
 W. W. Orr, Mannington
 C. L. Parks, Fairmont
 A. L. Peters, Fairmont
 P. F. Priouletau, Fairmont
 C. M. Ramage, Fairmont
 J. A. Riedy, Monongah
 E. F. Sheppard, Jenkins, Ky.
 A. W. Smith, Farmington
 E. P. Smith, Fairmont
 L. S. Smith, Monongah
 F. F. Sowers, Fairmont

A. J. St. Lawrence, Fairmont
 E. W. Strickler, Fairmont
 K. Y. Swisher, Fairview
 J. M. Trach, Fairmont
 G. H. Traugh, Fairmont
 J. R. Tuckwiller, Fairmont
 F. W. Vance, Mannington
 Charles W. Waddell, Fairmont
 Robert S. White, Fairmont
 Joe Yost, Fairmont
 L. N. Yost, Fairmont
 Paul Yost, Fairmont

Marshall County Medical Society

R. A. Ashworth, Moundsville
 P. D. Parlow, McMechen
 D. Berman, Victoria, B. C. Bd. Health
 W. P. Bonar, Moundsville
 B. F. Bone, Moundsville
 T. H. Chaney, Moundsville
 J. E. Cooper, Cameron
 O. F. Covert, Moundsville
 W. F. Crow, Glen Easton
 D. B. Ealy, Moundsville
 C. S. Fortney, Hundred
 Mary J. Fortney, Hundred
 W. B. Hartwig, Benwood
 Wm. G. C. Hill, Cameron
 John H. Luikart, Moundsville
 L. H. McCuskey, Moundsville
 C. R. McGuffie, McMechen
 Charles G. Morgan, Moundsville
 J. M. Neidermeyer, Benwood
 J. C. Peck, Moundsville
 C. W. Riggs, Cameron
 J. A. Striebach, Moundsville
 J. O. Theiss, New Martinsville
 W. C. Whistler, Smithfield
 O. P. Wilson, Moundsville
 S. F. Yoho, Captina

Mercer County Medical Society

A. E. Amick, Bluefield
 C. C. Ballard, Gap Mills
 Ben W. Bird, Princeton
 J. H. Bird, Rock
 J. F. Blaydes, Bluefield
 John R. Boyd, Oakvale
 M. B. Caldwell, Matoaka
 B. S. Clements, Matoaka
 F. J. Collison, Bluefield
 J. H. Craft, Springton
 W. B. Davis, Princeton
 W. E. Dickerson, Princeton
 Wm. D. Fitzhugh, McComas
 J. Francke Fox, Bluefield
 P. R. Fox, McComas
 H. H. Haggart, Bluefield
 O. S. Hare, Bluefield
 W. W. Harloe, Matoaka
 A. H. Hoge, Bluefield
 F. F. Holroyd, Princeton
 Samuel R. Holroyd, Athens
 E. W. Horton, Bluefield
 J. B. Kirk, Bluefield
 D. B. Lepper, Bluefield
 David Littlejohn, Charleston
 H. B. Luttrell, Bramwell
 M. N. Mastin, Goodwill
 Percy J. McElrath, Bramwell
 John McGuire, Bluefield
 W. Ross Morris, Alpoca
 Thos. E. Peery, Bluefield
 H. A. Porter, Itman
 C. J. Reynolds, Bluefield
 F. S. Richmond, Bluefield
 F. T. Ridley, Bluefield
 R. O. Rogers, Bluefield
 C. T. St. Clair, Bluefield

Wade H. St. Clair, Bluefield
 Charles M. Scott, Bluefield
 M. W. Sinclair, Bluefield
 W. C. Slusher, Bluefield
 Carl W. Smith, Princeton
 Ira M. Smith, Princeton
 Harry G. Steele, Bluefield
 E. M. Tanner, Bluefield
 G. T. Thornhill, Bluefield
 G. L. Todd, Princeton
 T. E. Vass, Bluefield
 J. R. Vermillion, Princeton
 Uriah Vermillion, Athens
 W. H. Wallingford, Princeton
 A. D. Wood, Bluefield

McDowell County Medical Society

J. H. Anderson, Marytown
 W. P. Bean, Keystone
 R. K. Bragonier, Keystone
 G. W. Brewster, Roderfield
 H. G. Camper, Welch
 L. H. Clark, Kyle
 C. C. Cochran, Kimball
 W. E. Cook, Puzeton
 H. R. Cornell, Elkhorn
 N. F. Coulon, Filbert
 S. A. Daniels, Welch
 J. W. English, McDowell
 G. P. Evans, Iaeger
 H. P. Evans, Keystone
 W. F. Ferguson, Premier
 D. L. Fleshman, Bassett, Va.
 W. C. Hall, Welch
 D. D. Hatfield, Yukon
 Charles F. Hicks, Welch
 C. R. Hughes, Kimball
 Alex. Irvine, McDowell
 W. L. Johnston, McDowell
 W. M. Junkin, Welch
 J. C. Killey, Vivian
 Luther Rush Lambert, Twin Branch,
 (moved, left no address)
 T. G. Matney, Iaeger
 J. Louis McCarty, Berwind
 R. C. Mitchell, Anawalt
 R. C. Newkirk, Twin Branch
 W. L. Peck, Coalwood
 I. T. Peters, Maybeury
 A. G. Rutherford, Welch
 J. L. Sameth, Welch
 R. V. Shanklin, Gary
 R. K. Shirley, Thorpe
 A. B. Spahr, New Hall
 W. B. Stevens, Eckman
 G. L. Straub, Welch
 J. E. Taylor, Anjean
 M. F. Torregrosa, Ashland
 E. E. Vermillion, Welch
 C. W. Vick, Jenkinjones
 E. M. Wilkinson, Welch
 W. C. Williams, Welch
 A. A. Wilson, Switchback
 C. R. Woolwine, Davy
 W. Branch Young, Elkhorn

Mingo County Medical Society

Stephen Aczel, Kermit (moved, left no address)
 L. F. Boland, Williamson
 W. H. Burgess, Williamson
 G. T. Conley, Williamson
 Jay R. Crawley, Logan (moved, left no address)
 H. C. Hays, Williamson
 O. P. Hodge, Matewan
 G. B. Irvine, Williamson
 O. H. Jennings, Williamson
 B. W. Kendall, War Eagle

J. C. Lawson, Borderland
 John D. Lee, Williamson
 James G. Lowry, Delbarton
 Frank Mosley, Williamson
 C. E. Peery, Glenalum
 W. H. Price, Chattaroy
 Fred Ben Quincy, Williamson
 B. J. Read, Red Jacket
 R. A. Salton, Williamson
 U. O. Sanders, Lobata
 Thomas Slayden, 814 Keystone Bldg.,
 Houston, Texas

Henry Clay Smith, Williamson
 E. P. Stepp, Kermit
 B. A. Tilghman, Matewan
 William York, Huntington

Monongalia County Medical Society

P. E. Arbogast, Morgantown
 M. L. Bonar, Morgantown
 C. F. Boyers, Morgantown
 C. M. Bray, Morgantown
 M. H. Brown, Morgantown
 L. W. Cobun, Morgantown
 B. F. Conaway, Everettville
 Forrest P. Coombs, Morgantown
 Samuel W. Cottle, Morgantown
 R. H. Edmondson, Morgantown
 R. W. Fisher, Morgantown
 E. F. Heiskell, Morgantown
 W. H. Howell, Morgantown
 J. R. Hughart, Morgantown
 B. Clifford John, Morgantown
 Brinley John, Morgantown
 Francis P. Kenney, Morgantown
 C. Royall Kessel, Morgantown
 Herbert V. King, Morgantown
 J. P. Lilly, Morgantown
 W. S. Magill, Morgantown
 C. H. Maxwell, Morgantown
 G. R. Maxwell, Morgantown
 T. Jud McBee, Morgantown
 Cosimo Menzalora, Morgantown
 S. J. Morris, Morgantown
 W. C. Moser, Morgantown
 D. M. Pfost, Morgantown
 George W. Phillips, Morgantown
 H. C. Powell, Morgantown
 R. Coale Price, Morgantown
 C. B. Pride, Morgantown
 F. T. Scanlon, Morgantown
 William B. Scherr, Morgantown
 J. N. Simpson, Morgantown
 Frank H. Sisler, 807 S. Elgin Avenue,
 Tulsa, Oklahoma
 A. E. Smith, Morgantown
 B. M. Stout, Morgantown
 Samuel F. Talbott, R.F.D. No. 3,
 Morgantown
 Alfred C. Taylor, Mona
 E. R. Taylor, Morgantown
 James Thompson, Morgantown
 Eldon B. Tucker, Morgantown
 S. S. Wade, Morgantown
 C. B. Wylie, Morgantown

Ohio County Medical Society

D. M. Aikman, Wheeling
 E. L. Armbrrecht, Wheeling
 Robert J. Armbrrecht, Wheeling
 D. B. Best, Wheeling
 E. S. Bippus, Wheeling
 H. W. Bond, Wheeling
 J. R. Caldwell, Wheeling
 H. P. Campbell, Wheeling
 J. T. Carter, Triadelphia
 W. U. Charlton, Wheeling
 C. H. Clovis, Wheeling
 E. E. Clovis, Wheeling

J. Plumer Cole, Wheeling
 H. B. Copeland, Wheeling
 A. L. Coyle, Wheeling
 W. A. Cracraft, Wheeling
 W. M. Dalbey, Wheeling
 H. N. Deem, Wheeling
 J. L. Dickey, Wheeling
 Thomas F. Downing, Wheeling
 R. U. Drinkard, Wheeling
 A. E. Earnest, Wheeling
 J. Leonard Eskey, Wheeling
 W. C. Etzler, Wheeling
 Ivan Fawcett, Wheeling
 W. S. Fulton, Wheeling
 M. Gaydosh, Wheeling
 R. D. Gill, Wheeling
 J. W. Gilmore, Wheeling
 Earl F. Glass, Wheeling
 A. J. Goodwin, Wheeling
 O. H. Griffith, Wheeling
 H. M. Hall, Wheeling
 N. A. Haning, Wheeling
 A. J. Harness, Coalburg
 L. N. Harris, Wheeling
 H. A. Henderson, Wheeling
 A. W. Higgins, Wheeling
 Arthur K. Hoge, Wheeling
 J. O. Howell, Bridgeport, Ohio
 Harry Hubbard, Tiltonville, Ohio
 Elizabeth Hupp, Wheeling
 Frank LeMoyné Hupp, Wheeling
 A. L. Jones, Wheeling
 E. Lloyd Jones, Wheeling
 E. L. Kaufmann, Wheeling
 Elizabeth Keay, Wheeling
 Charles H. Keesor, Wheeling
 M. B. Kelly, Wheeling
 T. M. Klug, Wheeling
 D. A. MacGregor, Wheeling
 J. Robert McClung, Wheeling
 John H. McColl, Wheeling
 W. T. McClure, Wheeling
 A. V. McCoy, Triadelphia
 O. D. McCoy, Wheeling
 W. H. McLain, Wheeling
 R. M. McMillen, Wheeling
 Mary B. Monroe, Wheeling
 W. T. Morris, Wheeling
 B. D. Morrison, Wheeling
 Albert E. Nolte, Wheeling
 A. J. Noome, Wheeling
 H. E. Oesterling, Wheeling
 J. J. Osburn, Wheeling
 R. M. Peddicord, Elm Grove
 E. M. Phillips, Wheeling
 Howard T. Phillips, Wheeling
 E. B. Plant, Wheeling
 W. A. Quimby, Wheeling
 J. O. Rankin, Wheeling
 R. J. Reed, Wheeling
 F. E. Roberts, Wheeling
 A. F. Ruble, Elm Grove
 J. W. Ruckman, West Liberty
 W. P. Sammons, Warwood
 Gustave Selbach, Wheeling
 W. M. Sheppe, Wheeling
 T. K. Shields, Elm Grove
 R. J. Snider, Wheeling
 O. M. Staats, Wheeling
 J. G. Thoner, Wheeling
 J. T. Thornton, Wheeling
 R. A. Tomassene, Wheeling
 S. W. Tretheway, Wheeling
 C. M. Truschel, Wheeling
 G. L. Vieweg, Wheeling
 Max Vieweg, Wheeling
 J. G. Walden, Wheeling

W. S. Webb, Wheeling
 M. B. Williams, Wheeling
 C. A. Wingerter, Wheeling
 Matthew C. Zubak, Wheeling

Parkersburg,

Academy of Medicine, of

W. A. Adams, Parkersburg
 C. W. Ailor, Parkersburg
 C. W. Albert, Parkersburg
 O. D. Barker, Parkersburg
 J. E. Barrows, Parkersburg
 R. H. Boice, Parkersburg
 Charles L. Boyers, Parkersburg
 Rolla Camden, Parkersburg
 W. C. Camp, Spencer
 H. M. Campbell, Parkersburg
 D. C. Casto, Parkersburg
 O. J. Casto, Parkersburg
 W. D. Cline, Williamstown
 Ira Connolly, Parkersburg
 Orva Conley, Vienna
 R. Wiley Corbitt, Parkersburg
 E. W. Crooks, Parkersburg
 U. L. Dearman, Reedy
 R. E. Davis, Parkersburg
 A. Morgan Dearman, Reedy
 E. H. Douglas, Petroleum
 Z. B. Ferrell, Parkersburg
 Mark O. Fisher, Parkersburg
 Wade Gaston, Parkersburg
 H. E. Gaynor, Parkersburg
 H. A. Giltner, Parkersburg
 E. S. Goff, Spencer
 E. T. Goff, Parkersburg
 J. J. Goff, Parkersburg
 J. T. Goff, Parkersburg
 W. R. Goff, Parkersburg
 P. L. Gray, Parkersburg
 C. E. Grimm, St. Marys
 T. Harlan, Auburn (moved, left no add.)
 T. L. Harris, Parkersburg
 E. C. Hartman, Parkersburg
 George D. Jeffers, Parkersburg
 A. P. Jones, Pennsboro
 L. P. Jones, Pennsboro
 W. H. V. Jones, Mole Hill
 T. W. Keith, Harrisville
 J. C. Lawson, Auburn
 John E. McQuain, Parkersburg
 R. B. Miller, Parkersburg
 E. D. Moyer, Cairo
 C. L. Muhleman, Parkersburg
 R. H. Paden, Parkersburg
 C. E. Park, Parkersburg
 B. S. Parks, Parkersburg
 W. D. Pickering, Lone Cedar
 H. D. Price, Parkersburg
 S. M. Prunty, Parkersburg
 C. W. Rexroad, Harrisville
 H. M. Reymer, Harrisville
 W. B. Richardson, Parkersburg
 B. O. Robinson, Parkersburg
 J. G. Rogers, Parkersburg
 L. O. Rose, Parkersburg
 Paul C. Starkey, Ravenswood
 M. R. Stone, Parkersburg
 H. H. Veon, Parkersburg
 R. H. Wharton, Parkersburg
 R. S. Widemeyer, Parkersburg
 J. B. Wilson, Pennsboro
 S. H. D. Wise, Parkersburg
 E. L. Wright, Parkersburg

Preston County Medical Society

F. A. Brown, Hopemont
 W. F. Dailey, Terra Alta

A. G. DeFoe, Bruceton Mills
H. M. Divvens, Masontown
F. D. Fortney, Newburg
R. D. Harman, Kingwood
L. H. Lewis, Kingwood
Etta Mason, Hopemont
Blanche B. Miller, Eglon
Harold Miller, Eglon
H. N. Moser, Terra Alta
J. G. Pettit, Hopemont
W. H. Post, Masontown
M. H. Proudfoot, Rowlesburg
B. S. Rankin, Tunnelton
D. J. Rudasill, Kingwood
E. E. Watson, Albright
W. A. Welton, Fairmont
Stanley R. White, Bruceton Mills
Earnest Wichterman, Masontown
J. J. Willingham, Hopemont
E. D. Wise, Rowlesburg

Raleigh County Medical Society

J. O. Bailiff, Mullens
McRae C. Banks, Raleigh
A. G. Bowles, Glen White
J. A. Campbell, Beckley
U. G. Cook, Beckley
W. C. Covey, Winding Gulf
W. H. Cunningham, Blue Jay
D. D. Daniel, Eccles
G. P. Daniel, Glen Daniel
Ross P. Daniel, Pemberton
M. S. Doak, Price Hill
E. S. Dupuy, Beckley
Byron W. Eakin, Tams
Ira M. Fisher, Stotesbury
George Fordham, Wyco
T. F. Garrett, Sprague
A. H. Grigg, Beckley
John L. Haddox, Montcoal
O. L. Hamilton, Vanwood
Frank S. Harkleroad, Sophia
E. H. Hedrick, Beckley
Dennis L. Hill, Wickham
W. W. Hume, Beckley
J. T. T. Hundley, Jr., Lillybrook
R. L. Hunter, Jarrolds Valley
D. B. Jarrell, Beckley
Kyle M. Jarrell, Beckley
G. W. Johnson, McAlpin
W. C. Mays, Riley
J. H. McCulloch, Beckley
J. E. McKenzie, Beckley
F. J. Moore, Affinity
W. G. Moran, Jr., Fireco
B. B. Richmond, Cranberry
Walter D. Simmons, Slab Fork
J. H. Smith, Edwight
Fred Stansbury, Beckley
B. B. Wheeler, Beckley
A. U. Tieche, Beckley
J. O. Williams, Dorothy
Robert P. Woods, Beckley

Summers County Medical Society

H. F. Bigony, Hinton
J. F. Bigony, Hinton
R. G. Broadus, Hinton
O. O. Cooper, Hinton
G. E. Gwinn, Hinton
George K. Nutting, Hinton
G. L. Pence, Hinton
D. M. Ryan, Hinton
J. W. Stokes, Hinton
W. L. Vansant, Hinton
J. H. Wilson, Meadow Creek
W. A. Wykle, Hinton

Taylor County Medical Society

E. R. Bucklew, Grafton
B. M. Chenoweth, Wendel
D. C. Peck, Grafton
F. S. Suddath, Grafton
A. R. Warden, Grafton
Paul Warden, Grafton
A. S. Warden, Jr., Grafton
J. S. Whitescarver, Grafton

Tyler County Medical Society

I. A. Gartlan, Wick

HONORARY MEMBERS

Gregory G. Ackerman, Wheeling
F. L. Baker, Burlington
A. B. Barnett, Wheeling
J. W. Bosworth, Wheeling
E. S. Buffington, Huntington
Thomas M. Calvert, Mannington
Irwin C. Carlisle, Bellwood
A. H. Carr, Bluefield
G. R. Davis, Charleston
M. A. Dowler, Glendale
W. P. Fawcett, Alderson
A. S. Grimm, St. Marys
B. F. Harden, Wellsburg
T. M. Hood, Clarksburg
W. C. Kelly, Morgantown
P. H. Killey, Vivian
H. P. Linsz, Wheeling
D. C. Louchery, Clarksburg
James Whann McSherry, Martinsburg
B. B. Ranson, Harpers Ferry
J. W. Rickey, Moundsville
J. Schwinn, Wheeling
S. S. Staunton, Charleston

DELINQUENT MEMBERS

Barbour-Randolph-Tucker

R. W. Dunham, Elkins
A. M. Fredlock, Elkins
S. D. Few, Parsons
E. H. Updike, Millcreek

Cabell

Asa W. Adkins, Wolf Pit, Ky.
F. F. Farnsworth, Milton
G. L. Howard, Huntington
N. W. Keiser, Huntington
S. A. McConkey, Barboursville
L. H. Mynes, Charleston
W. E. Neal, Huntington
A. J. Pickering, Huntington
R. V. Shirley, Ceredo
W. D. Stewart, Huntington

Central West Virginia

O. O. Bennett, Buckhannon
W. H. Gum, Buckhannon, R. F. D.
James McClung, Richwood
Lester Miller, Flatwoods
J. W. Smith, Gassaway
Staunton Trimble, Burnsville

Eastern Panhandle

David P. Fry, Hedgesville

Grant-Hampshire-Mineral

R. W. Dailey, Jr., Romney

Greenbrier Valley

C. I. Hall, Rainelle

Hancock

J. L. Pyle, Chester

Kanawha

L. L. Aultz, Charleston
W. L. Barbour, Thurmond

C. N. Brown, Swandale
V. T. Churchman, Jr., Charleston
I. W. Duff, Charleston
B. P. Garred, Charleston
Thurman Gillespy, Charleston
George F. Grisinger, Charleston
Harry D. Law, Nitro
T. A. McDonald, Quinwood
A. B. Nelson, East Bank
Carl F. Raver, Charleston
W. B. Robertson, Belle
Clara Schunk, Charleston
W. F. Shirkey, Jr., Charleston
S. D. Taylor, Ward
J. A. Work, Blue Creek

Logan

W. F. Harless, Clothier
J. C. Jones, Logan
S. B. Lawson, Logan
E. R. Logan, Omar
J. G. Lowry, Williamson
J. W. Lyons, Holden
J. F. May, Monaville
W. T. McClellan, Ethel
W. H. Parker, Braeholm
B. D. Smith, Omar
N. E. Steele, Logan

Marion

J. P. Alkire, Middleton
Henry D. Causey, Watson, Md.
T. J. Conaway, Barracksville
Carter S. Fleming, Fairmont
H. R. Yost, Fairmont

Marshall

J. E. Arnold, Cameron
A. L. Coffield, New Martinsville
F. E. Martin, New Martinsville

Mercer

J. G. Bishop, Bluefield
S. J. Kell, Bluefield
B. W. Steele, Mullens

McDowell

L. E. Cox, Mohawk
J. E. Davis, Welch
E. F. Peters, Princeton
H. T. Shifelbein, Eckman
E. N. Shockey, Carreta
E. C. Shull, Marytown
Victor L. Wetherby, Welch

Mingo

W. A. Dotson, Vulcan
Rufus M. Musick, Delbarton

Ohio

J. E. Marschner, Wheeling

Preston

C. S. White, Philippi

Raleigh

B. L. Pettry, Dorothy
A. R. Scott, East Gulf

Taylor

J. F. Chenoweth, Simpson
C. F. Shafer, Grafton
I. A. Stine, Grafton
R. D. Stout, Flemington
J. W. Travis, Grafton

Tyler-Wetzel

Victor H. Dye, Sistersville
E. E. Fankhouser, New Martinsville

The West Virginia Medical Journal

Directed and Edited by the Committee on Publication

[The Committee on Publication is not responsible for the authenticity of opinion or statements made by authors or in communications submitted to this Journal for publication. The author or communicant shall be held entirely responsible]

JAMES R. BLOSS, *Editor-in-Chief* - - - - - Huntington

ASSOCIATE EDITORS:

WALTER E. VEST
Huntington

HARRY M. HALL
Wheeling

J. HOWARD ANDERSON
Marytown

C. A. RAY
Charleston

MR. JOE W. SAVAGE, *Secretary-Business Manager*, Charleston

Entered as Second Class Matter, January 1, 1926, at the Postoffice at Charleston, West Virginia

Volume XXIV

FEBRUARY : 1928

Number 2

THE OFFICE TREATMENT OF GYNECOLOGIC PATIENTS *

By WALTER T. DANNREUTHER, M.D., F.A.C.S.
New York, N. Y.

THE gynecologic examination of a patient is a simple matter. The examination of a gynecologic patient is a complicated procedure, involving an adequate history, a complete physical inventory, and various laboratory tests, with a thorough investigation of the possible remote causes of pelvic symptoms. It is axiomatic that intelligent treatment is predicated on correct diagnosis. Now that our therapeutic resources have been so expanded that we are no longer limited to vaginal tampons, topical applications, curettage, and laparotomy, an accurate diagnosis is more than ever essential, in order that the remedial agents may be properly applied. It is quite evident that gynecological diagnosis and treatment are inevitably interwoven in any serious consideration of either phase of our clinical problems. Hence it is necessary to refer briefly to some of the important but oft times slighted details of the patient's examination.

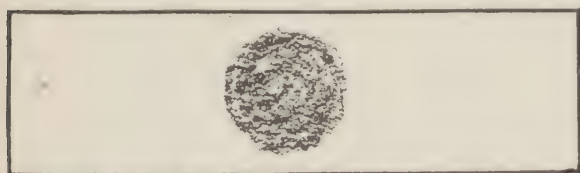
The specialist soon comes to realize that

woman's innate modesty obligates the physician to observe with meticulous care every refinement of his art when subjecting a patient to inspection of the genitalia. Yet, how often are these esthetic factors disregarded? A satisfactory examination of the abdomen cannot be made without the removal or displacement of all body clothing; but the patient will not be embarrassed if the breasts and lower extremities are covered with sheets. Again, when placing the patient in the lithotomy position, undue exposure can easily be avoided by holding a sheet at the waist level as she adjusts herself on the table. Tucking the center above the suprapubic region and draping each side neatly around the thigh and leg not only conceals all areas other than the vulva, but also keeps the sheet out of the examiner's way. It would be superfluous to say that sterile rubber gloves should always be worn when making a bimanual examination, were it not for the fact that this is still far from a universal custom. The gloved hand is a silent recognition of the patient's sensibilities, as well as a protection to both patient and physician.

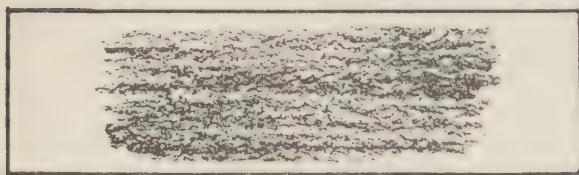
* Read before the Tri-State Medical Society, Huntington, W. Va., on September 29, 1927.

The first step in a pelvic examination is to pass a sterile catheter, lubricated with glycerine, and collect the urine in a sterile test tube. This provides a non-contaminated specimen for examination and insures an empty bladder, which is prerequisite for bimanual examination.

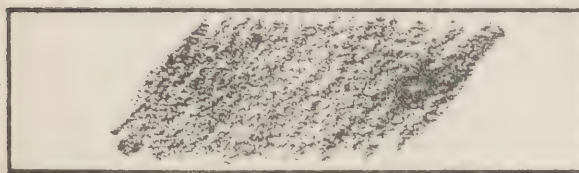
If a patient has leukorrhea, it is advisable to take smears on glass slides. Fig. 1 represents the method I have adopted to identify the specimens easily. One smear should be taken from the urethra, one from the vagina, and one from the cervix. The smear from the urethra should precede catheterization, be-



SMEAR FROM URETHRA



SMEAR FROM VAGINA



SMEAR FROM CERVIX

FIG. 1.—Differentiation of unmarked smears.

cause the catheter is lubricated with glycerine; and the one from the vagina should be taken before the introduction of the lubricated fingers or speculum. In the microscopic examination of smears adequate attention should be accorded the competent elements of the secretion. The material secured from normal mucous surfaces always contains mucous threads, mucous corpuscles, pus cells, epithelia and microorganisms. An excessive discharge is a manifestation of either hypersecretion or infection. It is therefore evident that by observing carefully the proportionate incidence of the several morphologic features, and the identification of what-

ever pyogenic microorganisms are present, all smears may be properly classified.

Several years ago I reviewed the records of 600 consecutive private patients and discovered that 119, or about 20 per cent, had urinary symptoms. This makes it apparent that a knowledge of cystoscopy is indispensable to the gynecologist. Even though not equipped to carry out elaborate urologic procedures, he can at least differentiate the simple cases, amenable to local treatment of the urethra and bladder, from those requiring further investigation and the attention of a urologist. The distinction is important, as no urinary symptom or symptom-complex is pathognomonic of anything. The diagnosis rests much more on the objective than the subjective evidence.

Vaginal Applications.—The most useful type of speculum for examining the vaginal walls and making topical applications thereto is the Ferguson, a plain cylindrical tube. After it has been inserted to its full extent, the vaginal walls are nicely exposed as it is slowly withdrawn. A medicated fluid may be poured in, and the medicament will follow the inner end as the instrument comes out, thereby bathing the mucous surfaces. In cases of senile vaginitis, pyroligenous acid used in this manner will quickly relieve the irritation.

The Ferguson speculum is well adapted to carrying out the Gellhorn treatment of advanced or recurrent cervical carcinoma. This consists of lubricating the speculum with a heavy coat of vaseline, placing the patient in the Trendelenburg position, gently curetting easily detached tissue masses, and pouring one ounce of acetone into the speculum, being careful that the acetone does not come in contact with the vaginal mucosa. After 20 minutes contact, the acetone is removed with pledgets of absorbent cotton and the vagina packed with iodoform gauze. Many of these patients can be kept quite free from bleeding and malodorous discharge by repeating this method of treatment occasionally.

Dusting powders are often useful in the vagina when it seems desirable to keep the surface dry. Equal parts of charcoal and

iodoform are especially servicable as a deodorant. A mixture of acetanilid, one part, and boric acid, three parts, is convenient for general purposes.

Vaginal Douches.—While douches are not given in the physician's office, they are probably more often prescribed in the treatment of gynecologic patients than any other remedial agent, and must be referred to briefly. A douche is indicated for the following purposes: as a cleansing agent, to promote hyperemia, as a deodorizer, as an antiseptic, as a contraceptive, and as a medicament. Routine douches are harmful and should not be used except for specific reason. The patient should be instructed to detach the douche nozzle after using and keep it in a 2 per cent lysol solution. The following table enumerates the most popular therapeutic agents for vaginal douches, the strength in which each is ordinarily used, and the purpose which, in my opinion, each best fulfills.

Medicament	Amount in 2 quarts of water	Function
Sodium chloride	4 drams	promotes hyperemia
Boric acid	2 drams	cleansing agent
Bicarbonate of soda	3 drams	dissolves secretion
Lysol	1 dram	contraceptive
Potassium permanganate	5 grains	deodorant
Pyroligenous acid	3 drams	local sedative
Acriflavine	30 grains	antiseptic
Mercurochrome—220	30 grains	antiseptic
Tincture of iodine	1 dram	gonococcocide
Mercury oxycyanide	5 grains	antileptic
Zinc sulphate	1 dram	astringent
Tannic acid	1 dram	astringent
Alum	1 dram	astringent

Vaginal Tampons and Packing.—Cotton or wool tampons, impregnated with either plain or medicated glycerine, have been used since time immemorial and still enjoy wide popularity, despite their obvious inefficiency. Although a medicament is sometimes selected for its counter irritant properties, the chief purpose of most tampon applications is to promote pelvic depletion. This can be far more satisfactorily accomplished by means of strip gauze, because of its greater capillarity. If an ounce of glycerine is poured into the vaginal vault through a speculum and the vagina packed with a strip of 2 inch gauze bandage, subsequent drainage is so free that the patient will have to wear a vulvar pad.

Topical Applications to the Cervix.—The portio of the cervix is covered with squamous

epithelia; the cervical canal is lined with columnar cells. The former take the stain of iodine; the latter do not. Hence, when an eroded or ulcerated area is visible on the cervix, it should be painted with tincture of iodine. If it takes the stain, stimulating chemicals will effect a cure; if it does not, such applications are futile, and the surface must be cauterized. If an ulcerated area bleeds easily, it may be touched with a 10 per cent solution of copper sulphate. Malignant

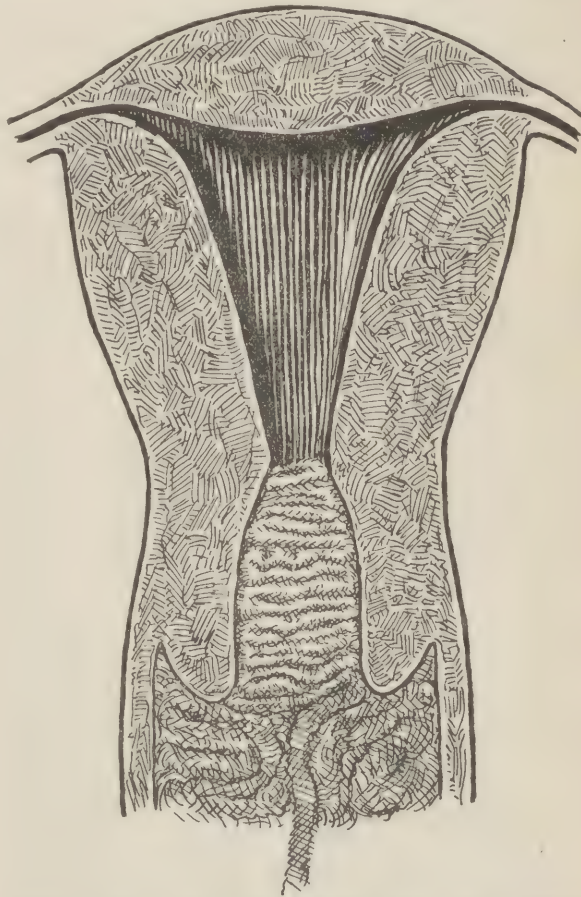


FIG. 2—The cervical canal is packed with a strip of gauze soaked in 2 per cent mercurochrome solution, and the vagina filled with iodoform gauze.

tissue will continue to bleed notwithstanding the application, whereas prompt cessation of bleeding suggests that it is probably not malignant. However, a biopsy specimen should be taken for microscopic examination and diagnosis in all such cases.

The chief virtue of the time-honored silver nitrate solutions lies in their stimulation of squamous epithelial regeneration, and their clinical application should be restricted to those cervical lesions which take the iodine

stain. The inefficiency of silver nitrate in cases of infection is due to two factors: the incidental coagulation of albuminous material, and the inaccessibility of the microorganisms, which lie deeply in the racemose glandular crypts of the cervical canal. So if chemical agents are relied upon for the eradication of infection, those endowed with the property of tissue penetration are the most servicable. Both iodine and mercurochrome have this power to a limited extent. One of my assistants at the New York Post-Graduate Hospital, Dr. Adolph Jacoby, suggested packing the cervical canal, after freeing it of secretion, with a small strip of gauze soaked in 2 per cent mercurochrome, and then filling the vagina with iodoform gauze (Fig. 2). A few drops of mercurochrome solution are also injected directly into the structures of the portio with a dental hypodermic syringe. The gauze is left in situ for 48 hours and then removed and replaced by the physician. I have followed this plan in many cases with gratifying results.

Intracervical Galvanisms.—The use of the galvanic current in the treatment of pelvic diseases was advocated by Apostoli as long ago as 1888. Unfortunately, this therapeutic innovation, like most new procedures, was misused, abused and misapplied, so that in the course of time it became of little more than historic interest. Yet, if one recalls that the negative pole of the galvanic current, applied to a muscle covered with a mucous surface, promotes glandular secretion, relaxes muscle fibres, and stimulates circulatory activity, its possibilities in cases of cervical stenosis, antifixion, and uterine hypoplasia are apparent. The negative pole is connected to a copper cervical electrode with a long insulated shaft, and the positive pole to a felt covered flat electrode placed over the suprapubic region. Using 6 to 12 milliamperes of current and increasing the size of the electrodes from time to time, the cervix can be gradually and painlessly dilated. There is nothing that can be accomplished by forcible dilatation under anesthesia that cannot be done as well and with more permanent results in this way. I have used this method (often in conjunction with organo-

therapy) in cases of obstructive dysmenorrhea and amenorrhea due to hypoplasia for 20 years with the utmost satisfaction. Not infrequently pyogenic microorganisms can be found in the secretion after one of these applications when previously they could not be discovered.

Cauterization of the Cervix.—Leukorrhea is a symptom and not a disease. It is caused by constitutional disturbances, pathologic changes in the cervix uteri, and abnormal alterations elsewhere in the pelvic organs. In adults leukorrhea is usually an expression of endocervical hypersecretion or infection. Until a few years ago, endocervicitis was a constant nuisance to the general practitioner, a serious problem for the gynecologist, and an excuse for much indiscriminate and useless curetting. Parenthetically, it is well to emphasize that Cullen and others have demonstrated beyond question that en-

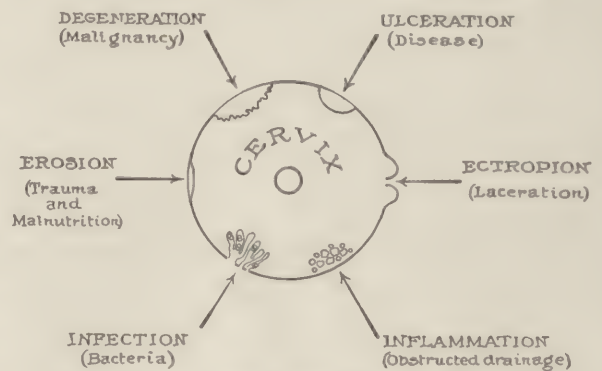


FIG. 3—The vicious circle of cervical lesions.

dometritis rarely exists and that leukorrhea usually originates below the internal os. All cervical lesions should have immediate attention, because of the vicious circle whereby a simple pathologic condition may be converted into a serious one if neglected (Fig. 3). In cases of acute cervicitis, all instrumentation and active treatment should be avoided. Local applications not only are of no avail, but they may even intensify the symptoms. Chronic endocervicitis, on the other hand, requires local treatment. It can be cured by (1) the electric cautery; (2) a Sturmdorff tracheloplasty, or (3) amputation of the cervix. For the majority of cases cauterization suffices. It can be used in the physician's office without anesthesia.

A small wire tip should be selected and applied superficially. One must not be too ambitious to do too much at one sitting, and the treatment should not be repeated in less than ten days. Before the cauterization, excessive mucous must be wiped away. The cautery

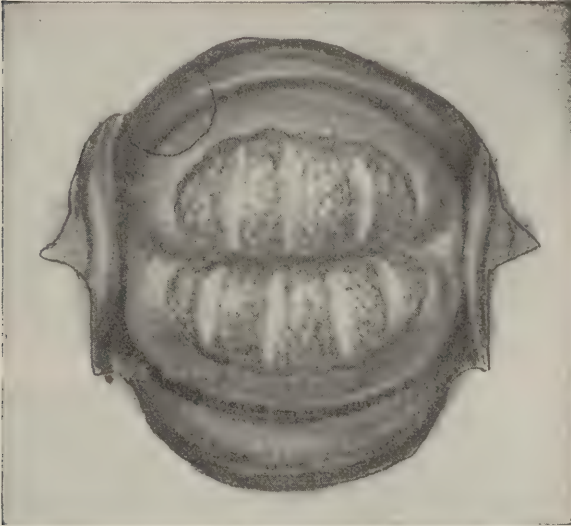


FIG. 4—Cauterization of endocervicitis with ectropion.

will operate better in a dry field, because the small tip loses its heat when in contact with moisture. In cases of ectropion, three or four strokes are made on both the anterior and posterior lips in alignment with the cervical canal (Fig. 4). In most instances it will be necessary to repeat the application a few times and healing will not be complete until several weeks have passed (Fig. 5). When large numbers of Nabothian cysts are present (Fig. 6) they may be punctured and sterilized simultaneously by plunging the cautery tip directly into them (Fig. 7). The glands lining the cervical canal can be destroyed by cautious applications within the canal. When an endocervicitis is so extensive that the entire portio is involved, the cautery strokes should radiate from the external os (Fig. 8). All cases that resist cauterization or that are complicated by extensive ulceration should be treated surgically.

Diathermy.—The therapeutic value of diathermy, more correctly called bipolar endothermy, in gynecologic diseases has been the subject of much recent controversy. Diathermy is usually considered as either surgical or medical; surgical when tissue destruction is the objective, and medical when

relatively low degrees of heat are projected and concentrated in a diseased area. One of my staff members, Dr. Mortimer N. Hyams, has made painstaking clinical studies of a large number of patients and has arrived at the following conclusions: Surgical diathermy is an ideal method of treatment for vulvar condylomata, urethral caruncles, infections of Skene's glands, and cervical polypi; the results from medical diathermy have been extremely gratifying in cases of acute uncomplicated urethritis, chronic adnexitis and inflammatory involvements of the uterosacral ligaments; it will relieve about 50 per cent of cases of obstructive dysmenorrhea. With the available armamentarium, it cannot destroy pyogenic microorganisms in the deep crypts of the cervical glands, cure gonorrheal endocervicitis, and restore the cervix to normal.

Intrauterine Irrigations.—Although intrauterine irrigations were popular twenty-five years ago, this method of treatment is now practically obsolete. Yet, in cases of spontaneous uninfected abortion that continue to bleed moderately, a few irrigations of the uterine cavity with an iodine solution (1 dram of the tincture to one quart of water) will often empty the uterus completely with-

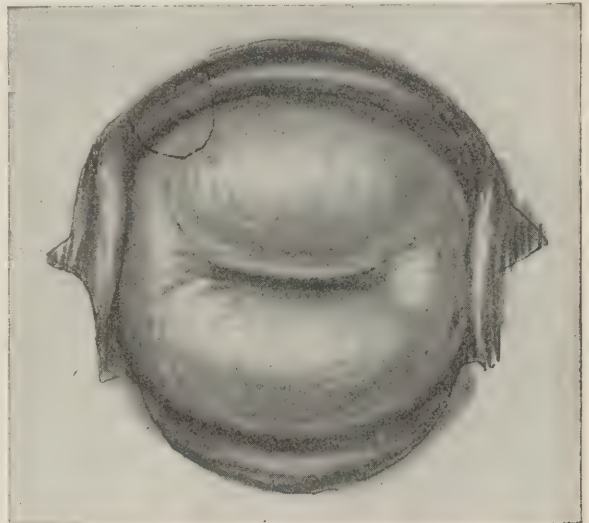


FIG. 5—Cervix healed after cauterization.

out curettage particularly if the patient is given a daily intramuscular injection of pituitrin. These irrigations should never be given early in the treatment of abortion or in the presence of infection.

Pessaries.—Stem pessaries are designed to maintain cervical dilatation. In occasional cases of acute antelexion with obstructive dysmenorrhea, in which repeated office treatments seem undesirable because of the patient's youth and virginity, forcible dilatation and the insertion of a stem are of some therapeutic value. But in general, it is bad practice to irritate the cervical canal by the prolonged contact of a foreign body, especially when the same result can be achieved otherwise without trauma. The cervix can be more easily and gradually dilated with the galvanic current.

The Gehrung pessary for cystocele, the cup pessary for prolapse, and other special contrivances are suited to exceptional cases only and need not be considered here.

Pessaries adapted to the treatment of retrodisplacements of the uterus are of great value in many cases and deserve more extensive discussion. It must be admitted that they promise no hope of permanent cure unless the displacement is discovered within six months of its occurrence. It is therefore advisable to insist that all patients return for examination six weeks after parturition or abortion. That is the ideal time to make the diagnosis, because if the uterus is replaced and maintained in position by a pessary, in-

pose of demonstrating that maintenance of the normal uterine position will relieve the patient's symptoms.

Pre-Requisites for the Application of a Pessary.—Bladder empty; uterus replaceable;

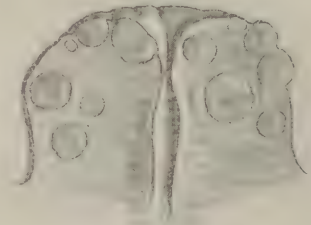
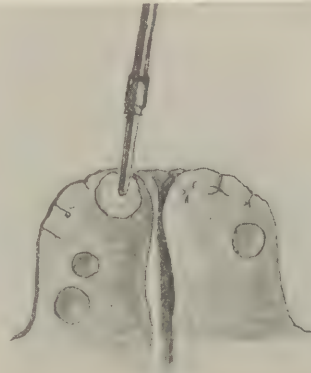


FIG. 7—Cauterization of Nabothian cysts.



FIG. 6—Multiple Nabothian cysts.

volution is promoted and a cure may be effected. In cases of long standing, the patient gets relief only so long as the pessary is worn. Incidentally, it also serves the pur-

uterus replaced; no extensive uterine prolapse; no extensive cystocele; preliminary estimation of the size of the vagina.

The uterus must not only be mobile, but must be restored to its normal position by the physician. The purpose of a pessary is not to correct a retrodisplacement, but only to maintain normal uterine poise after it has been replaced. If there is a pronounced prolapse or a large cystocele, the forcible downward pressure of the vaginal walls may be sufficient to push the pessary out through the vaginal orifice.

There are four types of hard rubber pessaries used in the treatment of mobile retroversion and retroflexion. The most practical for the largest number of cases is the one designed by Albert Smith. The only difference between the Hodge and Smith pessaries is that the Hodge has a wider anterior bar, so

that it is better adapted to cases with a somewhat extensive perineal laceration. The Thomas pessary is a Smith pessary modified by a thicker posterior bar, to take up the slack when the posterior fornix is unusually capacious. Ring pessaries are servicable in the presence of moderate cystocele or beginning prolapse.

Before selecting a pessary for an individual case, the configuration, width and length of the vagina should be estimated. The proper

capacity of the posterior fornix, after a little experience it is easy to select a pessary of the size and shape that the patient needs. A properly fitting pessary should not be felt by the patient or cause her any annoyance, nor interfere with douching or coitus. The patient should be directed to return for examination after three days, to make sure that the pessary fits well. Thereafter it should be removed, cleansed, and replaced every six weeks that can happen to an undersized pessary is that it will slip out of position or out of the vagina. On the other hand, one that is too large exerts undue pressure and causes local soreness. This is not only discouraging to the patient, but precludes further use of a similar appliance until all the soreness has disappeared. Naturally, if a pessary is inserted in the presence of parametrial or adnexal inflammation, the pressure of the foreign body will cause pain. So if complications exist, they must be treated and disposed of before the pessary is used.

Having replaced the uterus in its normal position, the only thing necessary to keep it there is some mechanical contrivance to hold the cervix back. The fundus is bound to stay forward, because it cannot slip backward without the cervix coming forward. The support might be a straight stick or anything else that would hold the cervix in its proper position (Fig. 9). By keeping the two fixed points, the pubic arch and the posterior vaginal fornix, separated by a rigid bar, the cervix can move up and down through a small arc, but cannot come any nearer the vaginal orifice. If a straight stick were used, however, it would push sharply into the posterior fornix and make the patient very uncomfortable, so the end of the stick is bent upward to conform with the outline of the fornix and put the utero-sacral ligaments on the stretch. Having thus provided for the curve of the posterior fornix, it becomes necessary to make another curve in the anterior end, to allow for the upward pressure of the perineal structures. This long upward curve permits the pessary to lie up out of the way in the narrow part of the pubic arch. Since the vagina is a wide canal, a single thin stick would not keep the walls on the stretch, so

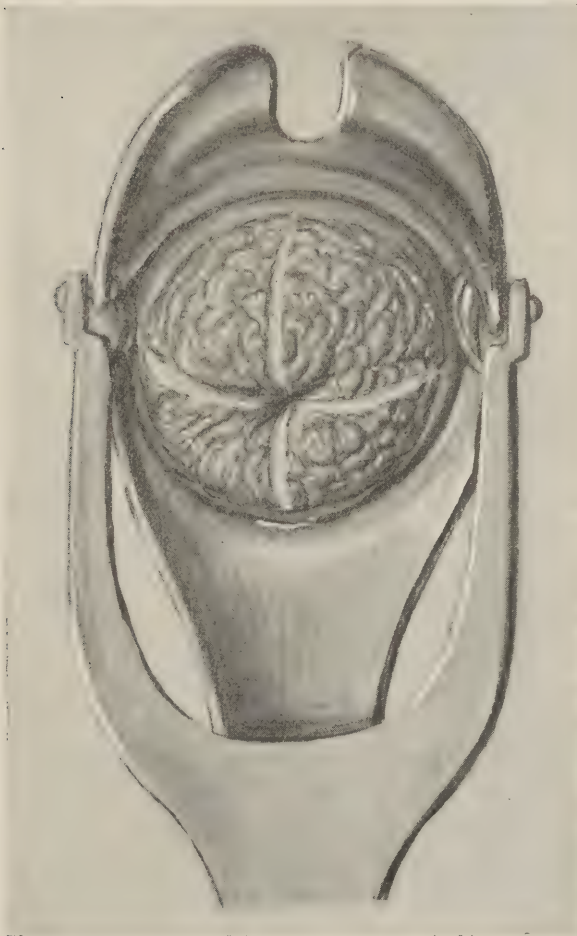
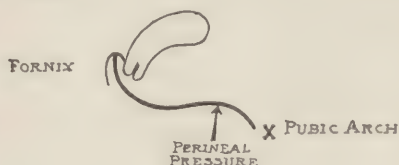
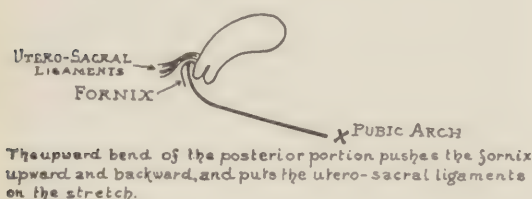
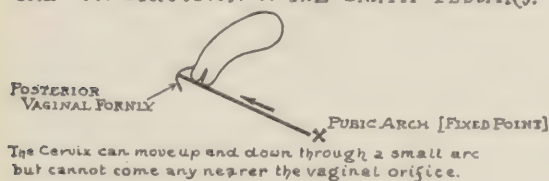


FIG. 8—Cauterization of extensive involvement of the portio.

length is determined by inserting the fingers into the vagina, just as though measuring the diagonal conjugate diameter of the pelvis. The middle finger is pushed well up into the posterior fornix, and the distance to the pubic arch marked by placing a little piece of tape on the finger under the arch. The approximate width is estimated by separating the fingers in the vagina before their withdrawal. By palpating the pubic arch and the

it becomes necessary to place another stick parallel with the first and connect the two anteriorly and posteriorly. The posterior bar is wider because the fornix is roomy; the anterior bar narrower, so that it can lie well up behind the pubic arch. The little transverse notch and downward dip at the anterior end is to prevent undue pressure on the overlying urethra.

THE CONSTRUCTION OF THE SMITH PESSARY.



The long upward curve of the anterior end of the pessary permits it to lie up, out of the way, in the narrow part of the pubic arch and allows for the upward pressure of the perineum and front part of the pelvic floor.



The pessary is wider posteriorly because the fornix is capacious. It is narrower anteriorly so that it can lie up well in the angle of the pubic arch. The little transverse notch at the anterior end is to prevent pressure on the overlying urethra.

FIG. 9—Construction of the Smith pessary; the cervix can move up and down through a small arc, but cannot come any nearer the vaginal orifice.

I have stressed the details of the principles upon which a pessary is designed because I have often seen pessaries misapplied and misfitted. Personal observations justify me in assuming that there are some men applying pessaries who do not thoroughly understand what these instruments are supposed to do, why they are constructed as they are, and how they should be adapted to the patient. Every curve in the outline of a pessary is put

there for a definite reason, and if the reasons are appreciated, there will be no difficulty in fitting a particular patient.

Having excluded parametritic, perimetritic, and adnexal inflammation, catheterized the bladder, replaced the uterus bimanually, and selected the proper pessary, the patient's knees and labia should be widely separated. The pessary is then introduced obliquely, the fingers making firm pressure posteriorly as the instrument passes the introitus. The pessary is then rotated to the transverse position and slid along the palmar surface of the fingers. As the posterior bar approaches the cervix, the fingers are turned (180 degrees) lifted above the posterior bar, and push the bar under the cervix. The anterior end will then have disappeared behind the pubic arch. Now the fundus cannot retrovert, because there is no fulcrum on which the uterus can turn. It is advisable to insert the pessary without forewarning the patient.

Incision and Drainage of Abscesses.—Three types of circumscribed suppurative accumulations frequently present themselves: pelvic abscess, suburethral abscess, and abscess of Bartholin's gland. They are mentioned chiefly to emphasize the fact that they are all best attacked with the patient under anesthesia.

A pelvic abscess is opened by drawing down the cervix, pushing a pair of sharp pointed scissors into the abscess cavity close to the uterus, and spreading the blades of the scissors widely.

A suburethral abscess found in the anterior vaginal wall should be excised rather than incised. Otherwise a fistula may result.

It is always a temptation to incise an abscess of Bartholin's gland over the point of greatest softening, which is usually on the vaginal side of the tumor. But if this is done, the dislocated duct may be severed and either a sinus or recurrence will follow. Complete extirpation is much better treatment than incision and drainage, but should never be attempted except under general anesthesia. The dissection invariably opens veins in the vaginal plexus, and several vessels deep in the wound must be tied. If, however, in-

cision and drainage are selected, the incision should be placed well out on the cutaneous surface of the tumor.

Urethral Applications.—While medications may be applied to the urethra by syringe injections, topical applications through a Kelly endoscope are more satisfactory. I have found a solution of 5 grains

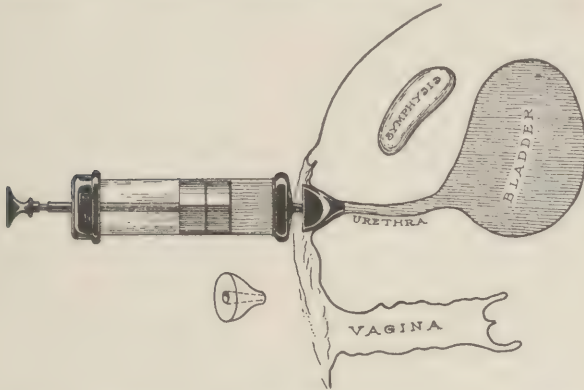


FIG. 10—Method of introducing solutions into the urethra and bladder without instrumentation.

of iodine crystals in mineral oil useful. The oily medium insures a longer contact than is the case when watery solutions are used. If one desires to apply a solution to the urethra or bladder without instrumentation, a blunt metal tip fitted to a record syringe serves the purpose well (Fig. 10).

Intravesical Instillations.—These are used in all varieties of cystitis. The following table indicates the solutions which have proved most useful for the several types of inflammation in my own experience:

Inflammation: Silver nitrate, 1-10,000 to 1-5,000; carbolic acid, 0.5% to 2.0%.

Hemorrhage: Adrenalin chloride, 1-10,000; alum, 0.5 to 2.0%.

Ulceration: Potassium permanganate, 7,500 to 1-3,500.

Tuberculosis: Oil of cajeput in olive oil, 20%; carbolic acid, 0.5% to 2.0%.

Gonorrhea: Tincture of iodine 3 dr. to 1 quart; mercurochrome-220, 1% to 2%.

Syphilis: Oxycyanide of mercury, 1-10,000 to 1-5,000.

Elaborate exposition of the topic I have presented would almost involve the condensation of a text book. Hence, it has been impossible for me to accord the several therapeutic measures mentioned the attention they deserve. The necessity for abbreviation has also precluded any reference to internal medication, hydrotherapy, organotherapy, radiotherapy, local anesthesia, etc., all of which are important therapeutic measures.

OUR TUBERCULOSIS SANATORIA *

By J. G. PETTIT, M. D.
Hopemont, W. Va.

THE cooperation of physicians will be earnestly sought by the National Tuberculosis Association and its various affiliated associations in the campaign to be launched in March, 1928, to emphasize the importance of early diagnosis of tuberculosis. Several million pieces of literature will be distributed, all stressing the importance of an early diagnosis and the beginning of rational treatment at the earliest stage of the disease.

It is the belief of the writer that his official position as Superintendent of the State Tuberculosis Sanitarium and President of the State Tuberculosis Association has given him an unusual opportunity to realize the

magnitude of the opportunity this campaign will give the physicians of the state to render a tremendous service from both a humanitarian and economic viewpoint.

There are in West Virginia probably more than 12,000 cases of active tuberculosis with an annual mortality rate of more than 1200. The average duration of the disease is more than two years; so therefore, the maintenance cost, whether these patients are in a sanitarium or outside, presents a terrible expense.

Prior to 1913 there were no institutional beds available for tuberculous patients in West Virginia. Through the efforts of the medical profession an institution was cre-

* Original paper.

ated at Hopemont for the purpose of providing an opportunity for sanatorium treatment of those making application in the early stages of the disease while the case presented reasonable prospects of improvement. With this service in view, eight cheaply constructed cottages were built with a bed capacity of 160. Quarters thus provided were suitable for the care of early fairly strong patients but very inadequate for the care of the many needing nursing care coming to the institution. Doubtless some died sooner with the limited care possible in these cottages than they would had they remained at home. Two hundred and forty hospital beds have since been provided, raising the capacity of the institution to four hundred and even now from this population it is difficult to find enough patients to fill the cottage beds. In addition to the four hundred beds at Hopemont there are enough at the Colored State and the Monongalia, Marshall and Kanawha County Sanatoria to raise the total to about 600, more than double the number available three years ago. Appropriations of the last legislature for Hopemont and the new southern sanatorium will add another 160 beds before July, 1929. I believe it is safe to predict that, with the growth of the new sanatorium it will not be long before there are 1200 beds in West Virginia.

The purpose of this article is a review of the work done by these institutions towards the eradication of this disease with a view of securing better cooperation to the end that the limited facilities thus afforded will be of maximum benefit.

I stated three years ago my belief that 75 per cent of the applications at Hopemont had symptoms of active tuberculosis for more than a year prior to the date of application. I am sorry to state that this condition is not much better at this time. The number of far advanced cases rejected and returned to their homes amounts to more than 300 this year. Even after eliminating these, less than 20 per cent could be classified as early cases. After as careful a selection of patients as possible, we have in the institution now as many as 150 requiring nursing care and food from bedside tables. This expensive nursing

and tray service was not contemplated and has added tremendously to the expected cost. Those familiar with the expense of maintaining a hospital can realize what it means to care for 150 patients confined to their beds.

I feel safe in saying that if the beds in the sanatoria of West Virginia were all occupied with patients appearing in the early stages of the disease that within six months 80 per cent could be returned to their homes quiescent or sufficiently improved and instructed so they could successfully continue treatment there without in any way being a menace to others and that these institutions would be factors four times greater in reducing the mortality than they are now with so large a population of terminal cases, some of whom are forced on us even five years after the onset. Furthermore if the beds were occupied by early cases maintenance costs could be reduced at least \$50,000 a year.

If a tuberculous patient is allowed to go about mingling freely with the public spreading infection for months, is it reasonable to suppose that the greatest period of menace to others is after the disease has progressed to a stage confining him to his home? If we continue our policy of occupying our beds with terminal cases, can we reasonably expect that the resources of the state will enable us to build large enough sanatoria to cope with the situation? Not a day goes by that we are not appealed to at Hopemont for a bed for some terminal case. If all were admitted it would soon be just a home for consumptives with so many deaths that none but the indigent would remain. Too many communities do not become concerned about a case until it becomes a nursing problem and then it occurs to someone that the patient should be sent to a sanatorium. Any health program contemplating the building of institutions to house terminal cases of tuberculosis, or any other infectious disease, without instituting at the same time a well organized campaign of prevention is destined to fail in appreciably reducing the mortality or improving the economic situation created by the disease. This has been the policy pursued in handling our mental patients: noth-

ing done in the way of prevention, the increase in our insane population is out of proportion and today the 3400 beds in our state hospitals are not enough by half to accommodate the mental incompetents. Those who concern themselves about appropriations for the maintenance of these institutions fully realize the financial limitations of the state and the economic necessity of using the means possible to strike at the most vulnerable point of attack.

Give these sanatoria the patients in the first six months of the disease instead of the last eighteen; one bed will then do the work three are now doing, the patient will be taken away from society in the period of greatest menace to others, the mortality will be appreciably decreased instead of being unaffected and, as stated before, the maintenance cost will be decreased, I will say \$100,000 when we have reached our goal of 1200 beds. What with this saving and a possibility of making the million dollars which will then be spent annually maintaining our institutions a factor four times as effective in reducing the mortality there is a challenge to the medical profession and the lay organizations interested in preventative medicine.

In asking for cooperation we are not unmindful of the fact that the greatest factor contributing to the unsatisfactory class of patients presented is the patient himself. We are daily reminded of Osler's statement that the prognosis depends more on what is in the head than in the chest and that it is rare that a fool ever recovers. We very often see patients with fine prospects of recovery after marked improvement surrender to their weak wills and return to indiscreet living. Not infrequently do we have to ask a patient to leave because of his persistency in breaking the rules and making a nuisance of himself to others. One hundred and forty patients have been admitted this year to Hopemont and remained less than ninety days. Many of these were sent home because they were terminal cases though the number included many with good therapeutic possibilities but so weak-willed they could not squarely face the issue before them. These "short termers" accounting for over 5000

days of treatment accomplished but little save added expense. The physician will confer a great favor on the management if he will explain to the patient contemplating application the arduous life ahead of the tuberculous patient taking the cure and the uselessness of going to the sanitarium unless he is willing to squarely face the issue and abide strictly by the physician's orders. We not infrequently meet patients who have been told that they have the disease, travel from one physician to another until they find one disagreeing and offering some quick cure. It is not uncommon for a patient to write after his physician has obtained an assignment for him that he has decided to remain home awhile longer. Please do not urge this type on us for rarely do they remain long enough to be benefitted and when they go home instead of giving the real reason for their leaving, give an excuse usually something which if believed would keep what might prove to be a good patient away.

Every encouragement is given visitors to Hopemont with a view to familiarizing the public with the aims and facilities of the institution. This invitation is especially extended to the physicians of the state.

Factors responsible for delayed applications cannot be frankly discussed without mentioning carelessness in examination by many physicians. About a year ago we admitted a patient pronounced non-tuberculous by five physicians. There was but little loss of weight but a constant evening temperature of 100. On quiet breathing there was not a rale but after coughing any novice could have heard them over both apices. Not a physician had had her cough and one had made his examination through the clothing. We have had a score of patients whose tuberculosis immediately followed typhoid fever. The patients tell us that after several weeks of easy fatigue and loss of weight the typhoid developed, temperature never very high, usually not above 100 or 101, tongue not coated, good appetite throughout the whole course of the disease, no headaches or backaches, no intestinal symptoms annoying them but that the temperature did not disappear and then they were informed they

had "a spot on their lungs." We are generally urged to accept these patients without delays. I shall not attempt to define an incipient case but we have seen several heretofore so represented with cavities as big as hen's eggs, some honey combed from apex to base of one or both lungs, and one with a complete collapse of one lung and cavities in the other from apex to the sixth rib. It is surprising how easy it is for some physicians to convince themselves that a hemorrhage has come from the throat and how many there are who will not make a diagnosis of tuberculosis until they find bacillus tubercles in the sputum. It is also surprising the number who pin faith in drug therapy and even some in violent exercise. A patient recently admitted had been advised to walk four miles a day. She lived about six weeks after her admittance. We find that many patients are very prone to exaggerate and place blame on the physician for delay and we do not accept every such charge as true, but some in-

stances of carelessness have come to our attention amounting to criminal.

The publicity plans for the campaign to be put on in March include meetings of State, County and City tuberculosis associations where talks will be given by members of the medical profession, motion pictures shown and pamphlets distributed, all emphasizing the importance of early diagnosis. A motion picture for lay audiences to be called "Let Your Doctor Decide," and another for medical groups entitled "The Doctor Decides" will be used in the campaign. All medical, health, social and civic organizations, both non-official and official, are urged to participate in this movement. A united, nationwide campaign will help greatly to focus attention upon this question.

The funds derived from the seal sale will be used to defray the expenses of this campaign the extent of which of course depends on the success of this sale.

DIFFERENTIAL DIAGNOSIS OF PULMONARY DISEASES *

By CHURCHILL ROBERTSON, M. D.

*Mt. Regis Sanatorium
Salem, Va.*

WHEN we stop to consider the advancement made in the fight against tuberculosis, we should be spurred on with new zeal and enthusiasm, for it is astounding when we realize that fifteen years ago tuberculosis headed the list of mortality in the registration area of the United States. One out of every seven deaths was due to tuberculosis. One hundred and forty-five thousand people in the registration area were yearly its victims. Today tuberculosis stands sixth in the list of mortality and there are now ninety thousand deaths yearly registered as a result of its ravages.

In 1904 a crusade was started against this white plague, headed by the organization of the National Tuberculosis Association. Their work has been most inspiring. The States

have taken up the Anti-Tuberculosis crusade. The State of Virginia is giving each year \$360,000 to care for her consumptives. Then the communities throughout the state have their local organizations. The schools look after their undernourished children and proper food is supplied by charitable organizations when it cannot be secured by the families. But the most important advancement is due to the interest of each individual physician, for it is through the family physician that the patients are sent to a sanatorium where they are treated and trained not only to care for themselves but are taught to protect their families as well.

Forlamina and John B. Murphy working independently in 1898, evolved the principal of artificial pneumothorax but this was not taken up by the profession until 1911 when

*Read before Mercer County Medical Society, March 31, 1927.

Floyd and Robertson of Boston presented a paper on artificial pneumothorax and to the latter is the credit given. The latest step for the alleviation of the advanced unilateral tuberculosis patient is that of the thoracoplastic operation. It is encouraging when we learn from statistics that ninety-six per cent of all cases when found in the minimal stage upon receiving sanatorium treatment and training are completely rehabilitated.

It was Dr. Davis R. Lyman who said, "If only one of the many means of making a diagnosis of pulmonary tuberculosis was left me, I would take the history of the case." It is essential to know whether or not our patient has lost strength and weight; whether he has loss of appetite, or other vague digestive disturbances; whether he coughs or expectorates; whether or not he is slightly feverish; whether he is susceptible to colds, and whether or not he has had pleurisy or hemoptysis. It is a rather generally accepted dictum that pleurisy and hemoptysis should be treated as tuberculosis until proven otherwise. The history of previous diseases such as grippe, unresolved pneumonia and pleurisy will frequently be found to be a flare up of an old chronic tuberculous process. Past history of enlarged cervical glands, pleurisy with effusion, and fistula in ano can almost always be assumed to have been tuberculous.

Frequently we may be misled from a pulmonary diagnosis by a history of gastrointestinal disturbance. It is rare that we examine a patient who does not give some abnormality of the digestive tract, and not infrequently patients with early tuberculosis present themselves to the internist complaining of so-called "dyspepsia." Details cannot be emphasized too much, especially as to a definite exposure and that particularly in childhood, for at this time an intimate prolonged contact is very apt to manifest itself in activity in later life.

In examining the lungs by the usual methods of inspection, palpation, percussion and auscultation, I believe that the greatest information can be obtained by a careful auscultatory examination. We have learned

that the most frequent site of early involvement is at the apex and along the inner margin of the scapulae, but not infrequently have we found the initial lesion to be a basal one. This emphasizes to me the importance of examining very carefully all over the lung area. An examination is never complete until after the entire chest has been examined stethoscopically following the auscultatory cough. This is best done by having the patient first exhale, then cough, after which a quick inspiration is taken. Rales which can be elicited in no other manner can be detected immediately after the cough and on the following inspiration. It is a great help in examining the posterior portions to have the patient bow his head slightly and throw his shoulders forward, at the same time relaxing all his muscles.

Occasionally we may be confused by the various types of adventitious sounds heard in the chest. There are the sonorous and sibilant rales which are so prevalent in asthma and chronic bronchitis. Occasionally we are misled by joint crepitations. Then, too, there are sounds produced by the contraction of muscles which at times are confusing. There are also the atelectatic or marginal rales which are heard on the first few inspirations in a shallow breather. These are usually elicited at the apex and extreme base. However, the rales that are essential for the diagnosis of tuberculosis are the subcrepitant and crepitant. These are small moist rales which are heard following the auscultatory cough and which Bushnell preferred to call "the typical indeterminate rales of tuberculosis."

A negative sputum in an early case means nothing; but repeated negative sputum in the presence of advanced pulmonary pathology should cause one to consider conditions other than tuberculosis.

The X-ray today is invaluable as a diagnostic aid and no pulmonary examination is complete without a study of well taken stereoscopic films.

SOME OBSERVATIONS IN 626 OBSTETRIC CASES *

By M. A. MOORE, M. D.
Kingston, W. Va.

DIAGNOSIS is the foundation for the successful practice of obstetrics, especially in those cases which are complicated. I consider the proper kind of examination as the foundation to good diagnosis. My professor of obstetrics in the medical college was particularly averse to vaginal examinations. If he told us once he told us one hundred times to keep our fingers out of the vagina, or we would infect the woman. I soon found out that he who does not make vaginal examinations is not much of an obstetrician. I now make as many as I think necessary and I have experienced no bad results. I think the solution of the problem is to be clean, use a sterile rubber glove in making vaginal examinations and cleanse the vulva with cresol solution before doing so.

I have noted in clinics in Europe, New York and Chicago both in gynecology and obstetrics that the majority use the left hand for making vaginal examinations. Why the left hand? The right hand is more skillful, more educated than the left. The right hand is the one which can tell the difference between a hand and a foot in a version. The right hand is the one which can outline the sutures best. In the cases of shoulder and breech presentations the right hand will make the diagnosis better than the left. The same is true of placenta praevia.

Another reason I favor the right hand for the internal examination: when it comes to operative work the strongest hand is needed inside. In digital dilatation of the cervix considerable strength is needed in separating the index and middle finger. In doing a version the right hand is better inside in my opinion because it is stronger.

At this point I wish to mention a method of examination which has helped me much in doubtful cases. This is the insertion of the whole hand into the vagina to make sure of the diagnosis. A little chloroform may be

given to give relaxation and keep it from being too painful. Slip the hand up far enough to feel an ear or a nose in an occiput posterior case, the fold of the axilla in shoulder cases or the bend of the groin in frank breech cases.

I will mention another method of examination here only to condemn it, the rectal examination. At a meeting of the A. M. A. several years ago I met some advocates of this. I have been at a loss to discover a motive for this method of examination. I have come to the conclusion that these enthusiasts over rectal examinations were formerly urologists who acquired a very delicate touch examining prostates. I think they should at least be consistent and do a low forceps operation or a podalic version per rectum when the occasion demands and not contaminate the vagina with the colon bacillus.

I wish here to note briefly the use of magnesium sulphate intravenously for the treatment of pre-eclampsia and eclampsia, as outlined by McNeile and Vruwink.

For the pre-eclamptic toxemia order the usual restriction of diet (nonprotein salt free). Push fluids. Bowels kept active with magnesium sulphate one-half ounce daily. Daily output of urine measured. Blood pressure taken twice daily. If B. P. is over 150 give intravenously twenty cc. of a 10 per cent solution magnesium sulphate. Repeat if indicated. Interrupt pregnancy in very severe cases.

For the treatment of eclampsia give intravenously twenty cc. of a 10 per cent solution magnesium sulphate as soon after the first convulsion as possible. Repeat every hour until convulsions are controlled. Patients who are comatose and whose B. P. falling should be given chloral hydrate 20 grains and sodium bromide 60 grains per rectum. Have utmost quiet in the room. All patients should be prepared for delivery as soon as quiet enough to do so. If in the second stage of labor, do a low forceps or :

* Read before the Sixtieth Annual Meeting of the West Virginia State Medical Association at White Sulphur Springs, June 22, 1927.

version. If in the first stage, call a consultation for a cesarian section.

I have been able to purchase sterile magnesium sulphate in twenty cc. ampules sterilized—10 per cent solution and also a 10 per cent solution of calcium chloride to be used intravenously in case of respiratory failure from an over dose. I now carry these in my obstetrical bag with a 20 cc. syringe.

The Potter Version. Early in my career as a general practitioner I ran across several obstetrical cases which would not deliver normally. Somehow I decided that version was the operation of choice. At first I was very dubious as to the results I would get, having uppermost in my mind a dead baby and a mother with puerperal septicemia. At the very first case I was surprised at the reasonable ease with which a version could be done (and I was certainly bunglesome enough), and I was happy when I found that mother and child both had an uneventful recovery from the operation.

As time went on I began to read in the journals of the Potter Version and I was struck with his improvements in the technique and his innovation—the using of the version in normal labor to obliterate the second stage. I think it was in 1924 when I went to Buffalo to visit Dr. Potter's clinic. I came back highly enthusiastic over the operation. And I am recommending it to the general practitioner as a very good help in many cases of trouble. My practice has not been one which would require the employment of the version in normal labor, and my experience with the technique has been mostly with complicated cases; however, I feel that there is a great field for this operation among the class of women who are looking for twilight sleep or its equivalent.

The Technique of the Potter Version.—The woman is prepared as for a major operation. She is anesthetized. Dr. Reynolds, who has been Dr. Potter's anesthetist for years uses chloroform. He says he gets more relaxation with this. The rectum is emptied, pubic hair shaved, genitals scrubbed and the woman is placed in the modified Walcher position. If two assistants are present they can hold her knees, if not place her

feet on chairs. The bladder is emptied. The operator scrubs up and uses rubber gloves which extend to the elbows. Dr. Potter uses his left hand for the internal work. The vagina and soft parts are now dilated or ironed out using as a lubricant green soap. First one finger is put in the vagina and extended up as far as the cervix and withdrawn with a firm pressure down. Then two fingers are used and this process must be continued until all the parts are well stretched. The cervix must have been already dilated or easily dilatable. Next the hand is pushed through the cervix by the head into the uterine cavity. The exact position of the child and its size is estimated. The position of the cord is ascertained and the internal diameters of the pelvis approximated. The feet are found and placed together so that they can be grasped with the forefinger and the middle finger. They are brought down while the head is pushed up with the other hand. Gently the version is made until both feet are delivered at the vulva. Gentle traction is now made until the knees are exposed. With a little more traction the buttocks of the child will rotate into the hollow of the sacrum. Then the body is further rotated by gentle traction on the anterior leg, until the child's back is under the symphysis. By this time the child's folded arms are in the hollow of the sacrum. Then the baby's body is held down and reversed ninety degrees until the scapula is under the symphysis. After the scapula comes into view the anterior arm is delivered with the operator's other hand. Now the child is rotated so that the posterior arm becomes anterior and is delivered as such.

No pressure has been exerted from the outside. The outside pressure has a tendency to push the head down and allow the arms to go up. By this time the baby's mouth is exposed and its feet are held high in the air. Its mouth can be cleansed now and allowed to breathe if a little more time is wanted to dilate the soft parts. When the complete delivery of the head is wanted the fingers are placed in the mouth and an assistant exerts pressure on the occiput by pressing just above the symphysis.

Then if the baby is not crying Dr. Potter puts a pair of scissors over its heart and if this is beating it will show an impulse. A blue baby never gives him any worry, a white one does. Then he clamps the umbilical cord with a hemostat and puts a Zeigler umbilical clamp on it. He gives the mother a dose of pituitrin and delivers the placenta.

A recent improvement in the technique is the folding of the hands across the chest just before the version is completed to prevent the hands going up by the head.

The indications for version are where some malposition of the child is encountered, or in normal cases where you wish to eliminate the second stage of labor and have this free from pain. Or in cases where the second stage of labor is unusually prolonged. The following malpositions of the child might be mentioned in which version is indicated: occiput posterior, face, chin, brow, shoulder and transverse presentations; one or both hands by the head, or the cord presenting by the head; in placenta praevia marginalis version is the operation of choice. Pendulous abdomen and contraction of Bandl's ring can both easily be managed by version.

We hear much now concerning intracranial hemorrhage, epilepsy and other injuries in the newborn due to prolonged labor and forceps. Many of these can be prevented by the Potter version.

Pelvimetry in obstetrics is important, but there are several things that the pelvimeter will not measure. One is the size of the baby, another is the amount of moulding that will take place, and another is the flexibility between the pelvic joints when they are under pressure. Then, too, the most important measurement, the conjugata vera, is the one which is the most inaccurate because it is measured with the fingers and the promontory of the sacrum and the under surface of the symphysis are variable points.

The point I am emphasizing is first make the pelvic measurements. Then make two other examinations, a complete physical examination of the mother and an examination of the baby in utero. The examination of the mother should look especially for rickets, kyphosis, and lordosis. Along with this the

history should be elicited in multipara as to any trouble at previous births. Also an examination of the glandular system for myxedema, dwarfism, et cetra, should be done.

All cases in which there is the question of a contracted pelvis I think should be hospitalized. However I am in favor of giving all borderline cases a tryout at labor.

Conservation of Time in Obstetrics.—Now the question comes up in the busy general practitioner's work as to whether he can conserve time on his obstetrical cases and yet be safe to both mother and child. In the first place I am opposed to the "setting out" act waiting on the cervix to dilate. I go home and return later. I find that while I am in the obstetrical room the woman expects me to help and too early interference is sometimes disastrous. Digital dilatation may be done, if the head is low and the cervix the size of a dollar and dilatable. By dilatable I mean completely effaced, soft and flexible. To determine the flexibility keep the examining fingers in the vagina for one or two pains to measure the dilatation when the pain is on.

The following methods have helped me in saving time on these cases: digital dilatation of the cervix, straightening the cervix toward the pelvic outlet, rupturing of the amniotic sac after it has served its purpose of dilatation, pituitrin and chloroform if indications are favorable. In many vertex cases the use of Dr. Potter's dilatation of the vagina in cases in which the vagina is small helps the case along considerably. Use green soap as a lubricant, giving a little chloroform if necessary and continue the ironing process for about fifteen minutes.

In cases which are complicated the Potter version or the forceps operation will often prevent a long tedious labor which is unnecessary.

I find that the matter of suggestion has considerable to do with the success of a labor case. A bottle of chloroform put on the table by the mother often has a wonderful influence even if you do not have to use any of it. The statement that the baby is presenting right is good news particularly to a woman who has previously had one which was a breech. Do not be too definite about stating

the time the baby is to be born, she might get worried if it does not come exactly on schedule time. Compliment her when she makes good expulsive efforts and she will try all the harder. A room full of women making suggestions has a bad influence on both the mother and the doctor and should not be countenanced. If operative work has to be done, do not tell her until the time comes to do it. Do not allow the pessimist to get to the stage when she cries, "I am dying," or "Please take the baby" because these suggestions repeated several times by the woman usually mean that the baby will finally have to be taken.

While doing some post-graduate work in New York City several years ago I asked the instructor in a prominent Lying-in Hospital about the use of pituitrin in the second stage of labor. He said that they never used it and they taught the students never to use it. Dr. J. Whitridge Williams³ in an article on pituitrin in 1924 states that he has discarded the use of pituitrin altogether. Drs. Rucker and Haskell⁴ in an article in 1921 collected a number of cases in which ruptured uteri and fetal deaths were attributed to pituitrin.

Although these men are authorities on this subject, I think their conclusions are a little prejudiced and overdrawn. There have been cases of ruptured uteri and stillborn babies before pituitrin was ever isolated which could not be blamed on pituitrin. I wish to state here that I think pituitrin in the hands of the unscrupulous, or in the hands of one who does not use any judgment as to the indications, contra-indications, dosage and potency of the extract is a very dangerous drug. But the same might be said of morphine, ether or neo-salvarsan. A series of cases could easily be collected of bad results from morphine or of ether but this does not mean that these drugs should be discarded.

A word at this point about the endocrinology and physiology of pituitrin. It is an extract of the posterior lobe of the pituitary body in the brain. Its chief physiological actions are: rise in blood pressure, an increased secretion of urine and milk, and a stimulating action on plain muscle tissue especially the musculature of the uterus. I

wish to emphasize the fact that pituitrin is an endocrine secretion. This secretion is intimately connected with menstruation and labor. At full term of labor we have ovary and pituitary extract acting again as they do at menstruation after a period of 280 days during which time the menstrual function has been inhibited by the presence in the uterus of the placental gland.

I have mentioned these facts to show that many women have a pituitary imbalance. This is particularly true in those who have had many children. It would be reasonable to assume that the internal secretion of the gland had been consumed, so to speak, in many labors. The same could be said of prolonged labor. And those women who have false labor pains, painful menstruation and reasonably quick labors have an over supply. If these statements are true why wouldn't it be logical to give pituitary extract in those cases which have the "lazy uterus"?

The point I am trying to make is this: Pituitrin is the most effectual drug we have to stimulate uterine contractions. In 1cc. doses it will cause tonic and continuous contractions, whereas in doses of from three to four minims the contractions, while increased in force and frequency, are like those of normal labor, succeeded by intervals of repose. The chief field for pituitrin is in delay of the second stage of labor where there is not mechanical interference. Here it often renders the forceps operation unnecessary. This is especially desirable in the case of the physician who is without assistance and in surroundings that render careful and aseptic work difficult or impossible. This point cannot be made too emphatic. Yet the only obstetrician I have been able to find who agrees with this is Dr. Shears⁵ of New York, who mentions the fact in his book. Most textbooks on obstetrics seem to assume that all work is done in the hospitals under aseptic conditions and with plenty of assistants.

I have mentioned the dosage above. I never buy it in ampules larger than 1-2 cc. and I seldom use a whole ampule at a dose.

The chief indication is uterine inertia and where labor is delayed by other than mechanical causes, and it should only be given after

the uterus is dilated. It is good in post-partum hemorrhage.

The contra-indications are: threatened rupture of the uterus, contracted pelvis, hypertension, myocarditis, nephritis, Bandl's ring contraction, pendulous abdomen, malpositions of the fetus such as transverse, occiput posterior, breech, face, brow presentations. Cases which have had a cesarian section and are pregnant again should not be given pituitrin. In cases of twins, triplets, monstrosities and unusually large babies the diagnosis should be studied carefully before giving the drug.

DISCUSSION

DR. JAMES R. BLOSS, Huntington:

I think Dr. Moore's paper should be emphasized in a few places. Last year we had a paper that said if you made other than a rectal examination you had a case of sepsis in the making. I am glad the doctor brought out the fact that he is able to do obstetrical work and make vaginal examinations and not have cases of puerperal infection. For twenty years I have made vaginal examinations. I use either hand; fortunately, I happen to be ambidextrous. It makes no difference whether I examine a patient with my left hand or my right hand, or go in after the feet with the left hand or the right; I am blessed my nature. If you are clean you can make vaginal examinations. I have had no hesitation in putting on forceps after making vaginal examinations or even in doing cesarian section. But you have to be clean, just as clean as for any other operation.

Now, about eclampsia. I do not know whether you are going to find anybody's results equal to those of Stroganoff, Wilson, of California, or of the Rotunda method. As Dr. Moore brought out, the time to treat eclampsia is before it develops. If you have a blood pressure that is going up, or a diastolic pressure of 100 mm. those are the danger signals and you have to be on your guard. The observations I have made are that with a rise in blood pressure magnesium sulphate intravenously probably does more good, but

when you have a patient developing convulsions out of a clear sky you have another story altogether. Week before last I had a woman who had been coming to the office regularly to see me and who was apparently all right — no albumin, the blood pressure within normal limits — yet on Wednesday morning she awakened her mother with convulsions. She was taken to the hospital and Stroganoff's treatment instituted. The other treatment had no results; she continued having convulsions, so after twelve hours' trial of medical treatment cesarian section was performed. Both mother and baby are alive.

Whether or not we are going to be able to do more, after we have examined the blood and have secured the carbon dioxide combining power, by using glucose and probably some sodium solution in these cases I do not know.

Dr. Potter and Dr. Rucker are experts. They are so skilful and version is so easy in their hands that it seems to be a safe procedure. I do not believe the doctor advises and I certainly would not recommend that the Potter version be taken up as a routine procedure in the home.

DR. GEORGE D. JEFFERS, Parkersburg:

In regard to castor oil during the slow and painful first stage in the primipara and in the multipara who has not been confined for twelve or fifteen years, where the contractions are slow, in those cases I give morphine and then give castor oil and usually get results in two or three hours with dilatation.

DR. C. A. RAY, Charleston:

The essayist represents the present day, and Dr. Bloss goes back twenty years. Maybe I should be allowed to go back forty. While this treatment of eclampsia may be empiric, it has never failed with me. I have always used Norwood's tincture of veratrum viride in heroic doses. I have never known it to fail to control the convulsions until you know where you stand. Use one-fourth grain of morphine hypodermically; then follow in 20 minutes with 20 minims of veratrum

viride. If that fails to control the convulsions, follow it in 30 minutes with another 20 minims. I have never seen it fail to control the convulsions until you have had time to decide what to do—whether to end the pregnancy or give intravenous remedies or what not.

DR. MOORE, closing the discussion:

Of course, the time to treat eclampsia is before it develops, but in general practice it is impossible to get many women to come for observation and examination until they are ready to be delivered.

As to the blood pressure, my experience has been that it is around the normal.

I have had no experience with the use of castor oil for dilatation.

DR. W. W. GOLDEN, Elkins:

Dr. Polack recently made a statement with regard to blood-pressure observations

in these cases—that the blood pressure in pregnancy is quite low. If I remember rightly, he mentioned 105 systolic as being about usual. I brought this back to my medical colleagues who do obstetrics, and they questioned that statement. I should like to hear from the essayist or Dr. Bloss or anyone else doing much obstetrics what they know about that. What is the blood pressure in pregnancy in normal cases? It would be well to establish a criterion or standard, so that as far as blood pressure is concerned we shall know whether or not the patient is becoming eclamptic.

BIBLIOGRAPHY.

1. McNeile and Vruwink J. A. M. A. July 24, 1926, p. 236.
2. Potter: "The Place of Version in Obstetrics."
3. J. Whitridge Williams: J. A. M. A., Nov. 29, 1924, p. 1768.
4. Kucker and Haskell: J. A. M. A., May 21, 1921, p. 1390.
5. Shears: Obstetrics Normal and Operative, p. 362.

SURGICAL CLINICS OF EUROPE *

By ROBERT KING BUFORD, Ph. G. M. D. F. A. C. S.

Charleston, W. Va.

PARIS

THE American Hospital was founded by American residents and physicians to provide a suitable place for the medical treatment of Americans traveling or living in Europe and is the only permanent hospital on the continent of Europe exclusively for Americans.

Work on the new building, which was dedicated as a memorial to the services rendered by the men and women of the American Hospital and the American ambulance corps during the war, was begun in 1922. The official inauguration ceremony took place on May 12, 1926, our National Hospital Day. The new building has accommodations for 120 beds.

The cost of the Memorial building, fully equipped, was \$1,000,000. The staff is composed of some of the best medical men in Paris. Dr. Edmund L. Gros, an American,

is president of the medical board. The physicians and nurses all speak English. This is by far the most modern and best equipped hospital in the old world.

I attended a private clinic of Dr. Thierry de Martel, one of the attending surgeons of this hospital. He was very courteous. In watching him operate, everyone is impressed with his skill, dexterity, use of local anesthesia, knowledge of anatomy and pathology. He used the transverse incision for gall bladder work. The transfixion needle, a sliding metal clip to slip over an artery forcep when clamped on an appendix or intestine to prevent contamination from the cut end, are a few of the instruments that bear his name.

In regard to the other surgical clinics in Paris, I wish to refer the reader to a masterly description in the August issue of the Journal 1926, by my friend and colleague, Dr. John E. Cannaday.

VIENNA

The University of Vienna, the second old-

* Read before the Kanawha Medical Society, November 1, 1927.

est German language university, was founded in 1365. The medical school records date from the end of the fourteenth century.

The Viennese school of medicine, soon after its inauguration began to attract attention beyond the confines of the land in the latter half of the eighteenth century. This fame was due to the brilliant men engaged in research and at that time a clinic patterned after that at Leyden was erected. This was due to the arrival as a member of the faculty of Gerard Van Swieten of Holland. The new clinic opened in 1754 and was the cradle from which such famous men as Hoen, Stoll and Peter Frank were raised and grew to fame.

In the year of 1784 the clinic was moved to the Allgemeines Krankenhaus (General Hospital), a government owned hospital, was built by Emperor Joseph II, one hundred and eighty years ago. It has ten thousand beds. The clinic immediately forged ahead in medical research and soon led the world in medical instruction.

In addition to internal medicine and surgery in the early part of the nineteenth century especial progress was being made in ophthalmology by Bear and Jaeger and at the same period Boer was laying the foundations on which were later to be built modern pediatrics and obstetrics. The result was that even at this early date physicians from all foreign lands were visiting the Viennese clinics in order to bring their knowledge up to the high standards developed there.

About 1845 the Viennese medical school had reached a high pinnacle in its world fame as the greatest medical center.

As the result of the collaboration of two geniuses in two distinct branches of medicine, Rokitansky, the pathologist, and Skoda, the clinician, a complete revolution was wrought in the conception of disease processes and their clinical manifestations and thus logically in their diagnosis. In this work these two pathfinders followed in the principle of the Paris school of medicine, but soon passed far beyond anything at that time achieved there. In this way was laid the foundation of the modern art of healing.

The results of this rebirth of clinical observation were seen in many departments.

At this time, Hebra was doing his work, which has lead to a total reformation in dermatology; surgery under Schuh took on a new aspect, in anatomy Hyrtle not only enlarged our knowledge of this important branch of medical study, but was the forerunner in giving enthusiasm to the succeeding anatomists. The extension of the knowledge of anatomy and pathology led to an increased interest in the normal physiological processes and under Bruecke enormous advances were made in this important branch of learning.

With the renewed interest in these basic studies, it was natural that the clinical enthusiasm of Skoda should not remain without effects on others. And so we see at this same period that talented clinician—Oppolzer, and the wonderful advance in the knowledge of eye diseases through the efforts of Arlt and Ed. Jaeger.

Then followed another group of men also influenced by the work of their immediate predecessors. These carried the renown of the Vienna school still further. Among the leaders of these, to mention only a few, were Meinert, the brain anatomist, the world famous surgeon, Billroth, and the justly acknowledged clinicians, Bamberg, Nothnagel and Neusser.

In Vienna in 1847, an operation under ether anesthesia was performed and in the same year Semmelweis discovered the causation of puerperal sepsis. In America, Oliver Wendal Holmes in 1843 wrote his "Contagiousness of Puerperal Fever" in which he showed the origin of this condition and laid down rules for its prevention all of which were later verified and amplified by Semmelweis.

The widespread influence of Rokitansky and Skoda is responsible for the development of specialization in medicine, Laryngology under the leadership of Tuerck and Czermark, the latter devising in 1857 the first laryngeal mirror; otology under Politzer; electrotherapy, hydro-therapy, etc., all of these factors led still more to the estimation in which Vienna was held as a teaching center.

On the first of April, 1861, in his 31st year,

Theodorus Billroth assumed the responsibilities of the surgical clinic in the University of Zurich. On the 21st of August, 1867, he was called to the chair of surgery in Vienna, adopting the antiseptic method of Lister. He soon became internationally known through his thyroid and gastric work. Since the passing of this famous surgeon, his pupil, Von Eiselsberg, a worthy successor has enjoyed a justly earned reputation of being one of the outstanding surgeons on the continent for years. He is chief surgeon of the first division of the surgical department of the University of Vienna. Precision, thoroughness and splendid asepsis are characteristic of Von Eiselsberg. He speaks English fluently and is a master teacher of surgery. Dr. Brietner, his first assistant, is very courteous and has a charming personality. He was very happy the first day I visited his clinic. He had realized one of his life dreams, that was being made a full professor. He is now doing all of the goiter surgery in their clinic. They rarely see a case of Graves disease, most of the goiters operated are adenomas, (non-toxic), for relief of pressure symptoms. He does a mikulicz bilateral resection after ligating all four thyroid arteries. Local anesthetic is used routinely.

It was interesting to see two operating tables in simultaneous use in one operating room, one by Professor Von Eiselsberg and the other by Dr. Brietner. The technique and methods were identical and each was demonstrating to an interested group of spectators. I was fortunate enough to witness a number of operations covering a wide range of work. All were done with equal skill and facility. I had the pleasure of going through the wards and seeing patients doing well following operations. The traumatic service is large and well equipped.

Fractures of long bones were treated with splints, skeleton traction was found in frequent use with a modified Thomas splint and Pearson attachment. The new hydro-therapy department was most interesting. I saw a number of patients who had been in water bed for varying lengths of time, for old ulcers and fistulae which had not improved with all the usual methods of treatments.

They lie on a mattress completely covered with water, body temperature all excretor remains in water until periodically drained.

Professor Jellenick gives his entire time to electrical pathology. He showed numerous interesting specimens in his museum. He emphasized the danger of amputation early in electrical burns, the vessels are friable and sclerosed. Hemorrhage being a great danger and often a complication. He advised to wait six to eight weeks when there was a well defined line of demarcation and the vessels had returned to normal consistency. Patients that are shocked or burned severely by electricity are not dead, but are in a state of suspended animation when first seen by the physician.

The second surgical clinic is under Professor Hochenegg. His operation for cancer of the rectum has deservedly given him a great reputation. The Hochenegg operation for cancer of the rectum is of the Kraske type, i. e. removing the fourth and fifth sacral vertebrae and the coccyx and in two-thirds of the cases the bowel is drawn down through the anal muscles or sutured in continuity. I saw a variety of work in this well organized clinic, i. e. one morning two gastric resections for carcinoma. Polya type of operation, Cholecystectomy for Cholecystitis, Laparotomy for incomplete intestinal obstruction following a plastic peritonitis. Radical amputation of breast for carcinoma. Professor Hochenegg and assistants are careful, rapid and unusual doctors with a scalpel. He is truly a master surgeon.

The department of Gynecology of the Allgemeines Krankenhaus (General Hospital) have two famous departments. The old Schauta clinic made famous by reporting six hundred patients with cancer of the cervix that had been operated with a mortality of six per cent, twenty per cent, five years cures. The clinic is now called the Pehan Clinic. Schauta makes a very extensive vaginal hysterectomy, the ureters are exposed and separated by using the Schuchardt vaginal and perineal incision. The same technique is being followed today. I saw the best vaginal surgery in Europe in this clinic.

The second gynecologic clinic, formerly the old Wertheim Clinic, is now called the Kermanner Clinic. Professor Dr. P. Werner, a pupil of Wertheim is the chief. Everyone is familiar with Wertheim's work and his operations for carcinoma of cervix. In his first five hundred cases, the mortality was 14 plus per cent and has had 24 per cent five year cures. Dr. Heidler, Professor Werner's first assistant, and everyone in the clinic is still doing the Wertheim operation verbatim. Their exposure of ureters and dissection of lymph nodes are more radical and thorough than any clinic I have visited. In both clinics a modification of Watkins interposition operation is done in first and second degree proclitias. The Schauta interposition is the operation done for complete proclitias. The urethro-sacral ligaments are sutured to the cervix, making a combined suspension and interposition operation. In both gynecological clinics, cat gut is used more freely than any other department in the hospital. The general surgical clinics use silk sutures routinely.

I attended Professor H. Feinsterer's private clinic in the Fran Joseph Spital. He has no public clinic, doing nothing but private surgery. He has visited America and is well known throughout the surgical world for his radical operation for ulcer and carcinoma of the stomach. He is very clever with local and regional anesthesia. All of his operations are performed under this form of anesthesia. I saw him do a number of gastric resections for ulcer and carcinoma. He removes the pylorus and from one-half to two-thirds of the stomach.

The upper part of the stomach is closed and a three finger breadth was anastomosed to the jejunum through the transverse mesocolon, silk sutures were used except cat gut for mucosa. His technique was perfect. I saw him do a cholecystectomy supplementary to a gastric resection in one case. He does a modified Kraske type for carcinoma of rectum. A pan hysterectomy was also done in one case. The Austrians are stoics and I do not believe American surgeons can do such extensive operations on our hypersensitive patients. Professor Feinsterer has perfected

his technique for gastric resection and is essentially a one operation man.

Vienna is the favorite city of American medical students. It has an American Medical Association. An American physician visiting Vienna will do well to visit headquarters, where he will be quickly put in touch with medical Vienna.

BUDAPEST

The capitol of Hungary, situated on both banks of the beautiful Danube, unfortunately does not receive the number of visiting American physicians the clinics deserve. The hospitals are well equipped and there are two surgical divisions of the Royal University. Polya is a master surgeon and his gastric surgery is worth the trip to Budapest. Professor Grosz has one of the largest eye clinics in Europe. The eye hospital has 130 beds, is staffed by ten assistants, twenty-two nurses, ten servants, ten mechanics, stoker and domestics. In 1925 there were 26,732 out patients, 2,150 in patients treated and 1,545 serious operations performed in this institution. Prof. Grosz is very courteous, speaks English perfectly and is a dexterous operator. I saw him enucleate an eye in 40 seconds and strongly advise any eye man to visit his clinic.

MUNICH

Professor Sauerbruch's clinic has an enviable reputation throughout the continent. His contributions to chest surgery focused attention to his clinic. I saw a variety of operations here. After seeing the skill and dexterity in the clinic, I was not surprised to learn that Professor Sauerbruch had been called to Berlin to succeed the famous Professor Bier. His first assistant, Professor Frey is a worthy success, a brilliant operator. He did a bloodless laminectomy without a chisel.

In the University Hospital, I also visited Professor Doederlein's famous gynecologic clinic. This was one of the pioneer clinics to discontinue the radical operation for carcinoma of the cervix and to treat these cases with radium. Good conservative work is being done there.

I had the pleasure and good fortune to visit Professor Alfred Haas' private clinic, a

65 bed institution, modern in every detail. He is a general surgeon, is the outstanding goiter surgeon in Germany, and averages about 800 thyroidectomies every year. He is a clean, careful, skillful surgeon. His thyroid work was the best outside of Switzerland, I saw on the continent. His wife is his first assistant. He does a bilateral mikulicz resection after ligating both inferior arteries extra capsular. Local anesthesia is used as a routine.

He demonstrated five cases of carcinoma of the thyroid gland that had total thyroidectomy, apparently well five years after operation. The clinic records showed an incidence of fifteen cancers, twelve carcinoma and three sarcoma in a series of 3500 benign tumors of the thyroid gland.

Pernocton, a new anesthesia given intravenously. 1cc. to each 25 lbs. of body weight. Usual pre-operative narcotics and local novocain. Patient usually falls asleep while drug is being administered. It is given very slowly and well diluted. No ill effects had been observed in forty cases of Graves disease.

BERNE

In 1872, Theodor Kocher, at the youthful age of 31, succeeded Lucke as director of the surgical clinic of Berne, his native town. Each year up to the spring of 1914, Professor Kocher published the results of his studies of the thyroid gland and its diseases. Berne is the cradle and Kocher the father of goiter surgery. At the time of his death, July 27, 1917, approximately 5,000 cases of goiter had been operated upon in his famous clinic. For nearly half a century, Professor Kocher had been in surgical harness at Berne, toiling vigorously and triumphantly to the end. He was succeeded by Professor de Quervain, a former assistant who has proved to be a worthy successor of his illustrious chief. He held a special clinic in English for our small party attending the International Goiter Congress. Every phase of cretins and thyroid disease was demonstrated. X-ray pictures of pelvic bones showed absence of acetabulum and separation of epiphysis in cretins. Novocain was used for local anesthesia. Anesthesia was perfect. Most of the goiters I saw were adenomas (non-toxic)

operated for pressure symptoms. Hypothyroidism and myxedema have given the continental surgeon so much serious concern that bilateral resection operations are the rule, leaving one-third of the gland. The Basedow type is infrequent and the so-called adenoma with hyperthyroidism is rare. The Kocher incision is used. Inferior thyroid arteries are ligated extra glandular before the goiter is delivered. After the gland is delivered, the superior thyroid arteries are ligated and the usual resection is done. I had the pleasure of spending a number of days in this great goiter shrine. Professor de Quervain is a great teacher, research worker and master surgeon. I visited four cretin farms and saw over 500 cretins in each. A number had large adenomas and myxedema. The outstanding symptoms of cretins are short nose, stubby fingers and thick skin.

Dr. Albert Kocher, the elder Kocher's son, has a private clinic. He is a charming host, speaks English fluently and does nice work. He follows the technique of his father and uses silk for ligatures.

Professor Steineman is a general surgeon and operates in private hospitals. His bone and joint work is exceptional. I saw him operate on two cases for loose cartilage in the knee. He pins or nails most all of his fractures. He demonstrated a fractured condyle of the humerus five days old. The arm had no splint. The Baldy Webster round ligament suspension of the uterus is done for retrodisplacement. His technique in thyroidectomy is good, employs local anesthesia and silk ligatures.

ZURICH

The surgical clinic at Zurich is under the direction of Professor Claremont, a former assistant of Professor Von Eiselsberg in Vienna. I saw him remove a number of thyroid adenomas. His technique is more like the American. He is very skillful with the use of the hemostats. He ligates the inferior thyroid arteries outside of the capsule and flushes the wound with a halogen compound, a solution of iodine and flourine removing it with suction. Local anesthesia and skin clips were used. Gas anesthesia was used

in orthoplosty of elbow joint following fracture and fixation of external condyle with a nail, enterposed fascia lata. The next case was a spleenectomy for sarcoma. He is very courteous and is the best technician in Europe.

LONDON

St. Bartholomew Hospital was founded in its present position in the year 1123 in fulfilment of a vow made in Rome during an illness of Rabere, a Canon Regular of St. Austin who also founded the Priory of St. Bartholomew. From the beginning, St. Bartholomew was a hospital for the sick and not a mere almshouse and this is distinctly expressed in a grant of privileges to it by Edward III. The relations of the hospital and Priory were examined and the privileges of the hospital confirmed by Pope Lucius III in 1183, by Richard de Ely, Bishop of London in 1198, by Eustace de Fauconberg, Bishop of London on July 1, 1224, and by Simon Ludbury, Bishop of London on May 1, 1373, and the two foundations were finally separated on the dissolution of the Priory in 1537. The hospital and its revenues came into the possession of Henry VIII who in 1544, at the petition of Sir Richard Gresham, refounded it by royal charter and in 1547 granted it a first charter which gave back to the foundation the greater portion of its former revenues. At this time the hospital had 100 beds and since that time its accommodations for its patients has increased to seven times its original extent while the whole out patient department has been added which extends the benefits of the foundation to about 80,000 patients every year. The earliest medical book due to St. Bartholomew Hospital was written by John Merfield, one of the Canons of the Priory in the latter half of the fourteenth century. It is called "Breviarium Barthalomie" and is a general treatise on medicine based in part upon observations made in the hospital.

For some time after granting of the charter of 1547, Thomas Vicary, sergeant surgeon to Henry VIII, Edward VI, Mary and Elizabeth, took an active part in superintending the hospital. Soon after the second foundation, the staff consisted of a physician and

three surgeons. The first physician was Dr. Roderigo Lopus and the first three surgeons were William Cartar, George Bailey and Thomas Vaughan.

Harvey, the discoverer of the circulation of blood, was appointed physician to the hospital, October 14, 1609, and held this office for thirty-four years. The principles as to the wards are stated in some rules which he drew up at the request of the governors and are followed to this day.

The earliest record of the school of St. Bartholomew dates from 1662 and five years afterwards, a library for the use of the governors and young university scholars was established. Drs. Radcliffe and Meade were governors of the hospital at the beginning of the eighteenth century. In 1726, accommodations were provided for a museum of anatomical and surgical preparations which was placed under the charge of John Freke, then assistant surgeon to the hospital and previously sergeant surgeon to Queen Anne.

In 1734, leave was granted for any of the surgeons or assistant surgeons to read lectures in anatomy in the dissecting room of the hospital. The first surgeon who availed himself of this permission was Edward Nourse, whose courses consisted of twenty-three lectures each. These anatomical lectures delivered for many years in or near the hospital, were followed in 1765 and for many years after by courses of lecture on surgery from the former pupil and prosector, Percivall Pott, who had been some years surgeon to the hospital and among whose pupils was John Hunter.

About the same time Dr. William Pitcairn and subsequently Dr. David Pitcairn who were successively physicians to the hospital, delivered lectures, probably occasional ones on medicine. It was in one of these courses that Dr. David Pitcairn pointed out the relation between cardiac disease and acute rheumatism, until then unobserved. Further additions to the course of instruction were made by John Abernethy, who was elected assistant surgeon in 1787. In conjunction with his colleagues, Drs. William and David Pitcairn established the principal lectures of the present day, lecturing on anatomy, phy-

siology and surgery in the theatre erected for them by the governors in 1791 and their high reputation attracted so great a body of students among whom were Benjamin Brodie and William Lawrence and the poet, Shelley, that it was found necessary in 1822 to erect a new and larger anatomical theatre. In the same period, Dr. William Austin, physician to the hospital delivered the first course of lectures on chemistry.

Prof. G. E. Gosk, C.M.G.D.S.O.F.R.C.S., is the director and Mr. T. P. Dunhill, C.M.G.-M.S.B.S., (Melb) is the assistant director of the department of surgery. Mr. Dunhill, an Australian, was induced to join the hospital teaching and surgical staff about ten years ago. He is a well known surgeon throughout the world. His thyroid work has been outstanding. He was the first one to advocate and perform the modern radical subtotal thyroidectomy for Graves disease. I had the pleasure of meeting him in Berne during the meeting of the International Goiter Congress. He has a charming personality and was a most delightful host in his clinic and home. I spent several days in his clinic and saw a number of cases of Graves disease operated. He removed two-thirds of the gland in Adenomas (toxic). In the exophthalmic type he is still following the same technique described in the British Journal of Surgery a number of years ago, that is, one lobe is completely removed and two-thirds of the other lobe is removed, leaving the upper one-third with an intact blood supply. He used silk ligatures. The patient's neck is injected with novocain in the wards before going to the operating amphitheater. Intro-tracheal ether or nitrous oxide is used in addition. He does a posterior gastro-enterostomy for duodenal ulcer, in a case of stone in left ureter lower one-third. A left rectus incision was done, transperitoneal exposure of ureter ligated uterine artery, removed stone and sutured ureter.

I was greatly impressed with his asepsis, knowledge of surgical pathology and dexterity. He took his teaching of students very seriously. The medical schools in London are an integral part of the large hospitals. The students after their second year are per-

mitted to scrub up and prepare the cat-gut, handle instruments, in fact perform the duties of our nurses, finally evolving to the coveted honor of second and third assistant to the chief.

GUYS HOSPITAL

Guys Hospital is one of London's famous old institutions where Lane did his famous bone plating, intestinal kinks and colectomies.

I attended Mr. Rowland's surgical clinic, who is one of London's outstanding surgeons and teachers. Saw him excise a Rodent ulcer (Epithelioma of face) did a block dissection of glands and plastic flap repair. His next case was a carcinoma of breast. He performed a radical Halsted operation. His records showed 80 per cent cures for ten years when the axilla was not involved, 40 per cent when axilla was infected. He strongly advised against radium and x-ray in Epithelioma of face. Mr. Rowland is a splendid surgeon and a natural born teacher. He talks to his students all the time during the operation.

Mr. Collins, one of the attending surgeons, did a cholecystectomy for calculous cholecystitis and repaired a large ventral hernia. Two operating tables are in use at the same time in his clinic. His technique is good and similar to ours in America.

LONDON HOSPITAL

This institution was opened on November 3, 1740. Dr. Andree and Mr. John Harrison were elected physician and surgeon respectfully. In 1749, a course of lectures on surgery was delivered by Mr. John Harrison. In 1769 future staff physicians were required to hold a diploma of the College of Physicians. In 1772, iron bedsteads were first introduced. In 1780, surgeons were henceforward required to be members of the company of surgeons in London. Afterwards, Sir William Blizard was elected surgeon. In 1785, the first session of the medical school was held and in 1791 a thermometer was purchased. In 1823 gas was installed in the corridors, not in wards. In 1829, medicine was only administered by nurses who could read and write. In 1834, a filtering system was adopted and no physi-

cian or surgeon could hold his position for more than twenty years. In 1842, a special ward was set aside for Jewish patients. In 1844, were made appointments of House surgeons. In 1846, all surgeons were required to be Fellows of the Royal College of Surgeons of England. In 1849 the purchase of a microscope was made. In 1852, a committee held that the apothecary was not the fit person to administer chloroform. In 1856, Miss Florence Nightingale was elected a life governor. In 1857, the first appointment of a dental surgeon was made. In 1880, commencement of the systematic training of nurses. Lectures were given by the matron, Miss Luckes, and the medical and surgical staff. In 1896, saw the introduction of Roentgen rays.

The hospital has 849 beds and is the largest in England. The museum contains a very complete series of specimens illustrating the pathology of every variety of disease. The large clinical field embraced by the hospital has enabled successive curators to make this collection one of the most extensive and valuable in London. During 1926-27 more than 500 new specimens were added. In many of these, a complete account of the case with photographs and x-ray is available. The museum contains an extensive series of dissected parts, conveniently displayed in special cases. These dissections embrace the whole of the human body. Included in the collection are sections of the trunk and limbs, plaster models of sections through the head, thorax, abdomen and pelvis and wax models of embryos at different stages of their development.

There are seven surgeons, five assistant surgeons and four first assistants. The third floor is composed of a net work of operating rooms. In the mornings, most of the surgery is gynecology. In the afternoons, all of the surgeons are operating. You can go from room to room and see the greatest variety of general surgery in London in the same length of time.

Mr. Walton is the most finished surgeon I saw work. He is a rapid operator and is very conservative. I saw him explore a number of duodenal ulcer cases. He does not re-

sect or excise the ulcer. He partially occludes the pylorus and does a high postero-gastroenterostomy. Verticle method, uses silk for serosa and cat gut for mucosa. He has a series of 1500 cases that he has performed this operation on and reports that his results are as good as the more radical resections and has practically no mortality. He does McBurney incision for appendectomy and Battle for upper abdomen. In oblique hernia, the sac is ligated high, cord is not transplanted. He believes that the sac is the chief factor in recurrence. He employs the auto-plastic method in acquired hernias. The Mayo incision was used in a nephrectomy for renal calculi and silent kidney. An open reduction was done for epiphyseal separation and fracture of condyle of humerus with ankylosis, callous was excised and arm was put up in extreme flexion in plaster paris the hand was left free, a bilateral resection was done for a multiple adenomatosis (non-toxic) goiter.

Mr. Howard did a nephrectomy for hydro-nephrosis and a one stage supra-pubic prostatectomy. His assistant, Mr. Neilton, is also a good technician. Most excellent urological surgery is being done in this clinic.

Mr. Lindsey has a large clinic. I saw him do two gastric resections. Polya's method for ulcer of stomach, lesser curvature. A radical Halsted operation for carcinoma of the breast and a cholecystectomy for infection in one afternoon. The following day he did one of the most difficult cleft palate operations, and a gastroenterostomy for duodenal ulcer.

Mr. Souttar does beautiful brain surgery. He follows Cushing's technique very carefully. He injects the trifacial nerve with alcohol for tic douloureux. His cholecystectomy is similar to Judds and does not drain. The next operation was an artificial pneumothorax.

All the surgeons in this institution are doing modern surgery. They are courteous and seem to enjoy having visitors. I would advise every one to visit this remarkable institution when in London. More and a greater variety of surgery can be seen here in a short time than in any other place in England.

FOREIGN BODIES IN THE STOMACH *

By FRANK V. LANGFITT, M. D.
Clarksburg, W. Va.

MOST of us are satisfied to use our stomachs for the reception and digestion of our food, and if they perform this function properly without the frequent hyperacidities, anacidities and various other common maladies from which a large percentage of the human race suffer, we should feel very fortunate. But in reviewing the literature we find a number of cases reported in which the stomach has been filled, or partly so by almost all conceivable objects which it is possible for one to swallow.

We find that the discovery of foreign bodies in the stomach is by no means a recent thing. Schwabe in 1635, removed a table knife from the stomach 41 days after its ingestion.

Some foreign bodies are swallowed by the insane, others by accident, while others are occasionally swallowed by professionals who do so as a means of livelihood, for the amusement of the public.

Buttons, coins, pins, safety pins, nails, spoons, forks, stones, broken glass, keys, wood, printers' type, false teeth, dental plates, and hair balls are among the bodies most frequently swallowed.

Those swallowed by accident occur most commonly among children and are usually single, smooth and round, such as coins, marbles and whistles.

The sharp objects may do considerable damage in their passage through the gastrointestinal tract. Instances have been reported of large objects such as spoons, or forks having been expelled by the patient per rectum without any apparent injury to the health.

Black reported a case, an insane patient in a period of eight months passed through the rectum 157 pieces of glass, the longest piece being two inches in length, 102 pins, 150 rusty nails, 3 hair pins. 15 broken fragments

of iron, a large piece of lead, half of a broken shoe buckle and three small hooks. Not all cases are fortunate enough to pass sharp objects without some injury. A number have received perforations of the esophagus and stomach, while in some cases the walls are badly lacerated.

The length of time in which foreign bodies remain in the stomach before discovery is quite variable. Where they are swallowed accidentally, the accident is usually reported at once and treatment instituted promptly. Among professionals and the insane the foreign bodies may be present a long time before they are discovered. Numerous instances are reported where a large assortment of articles have been retained in the stomach for long periods of time without producing any symptoms of injury to the mucosa.

Benjamin in 1907, reported a nail and glass eater, who ate pieces of glass as large as his thumb for 20 years and swallowed eight- and ten-penny nails for five years. At operation fifty-two nails in various stages of erosion and five pieces of glass were removed. The nails were in bunches and a number were imbedded in the stomach wall surrounded by exudate.

Brand of England, reported a case of a woman age 27, upon whom he operated and found seventeen keys, the largest measuring 3 5-8 inches in length, two coins, three safety pins, one cotter pin and one pencil sharpener.

Thorek of Chicago, operated upon a professional swallower from whose stomach he removed the following articles: Upholstery tacks 12, nails 110, nuts 2, screws 3, tack heads 4, safety pin parts 66, safety pins whole 12, paper clips 22, bolts 4, curtain rings 1, can opener 1, beer check 1, washers 2, cartridges No. 22 1, No. 38 1, coin ten-cent 1, thumb tacks 33, making a total of 276 objects. In this case there is certainly a great variety of articles while in the case of Brand the swallowing was confined mostly to keys.

Among a number of other very interesting

* Read before the Sixtieth Annual Meeting of the West Virginia State Medical Association at White Sulphur Springs, June 22, 1927.

cases reported, from the number of objects removed from the stomach are those of Gaylord who removed 453 carpet tacks, 40 knife blades, 142 screws, 40 pen points, several small pieces of metal and a mass of broken glass. The whole weighed nearly two and a quarter pounds.

Balfour removed seven teaspoons.

Winslow, 1300 articles, mostly small pins. Most of these cases were among the insane.

Klose, 713 shoe nails.

Matthews, 1149 articles, consisting of 19 different varieties.

Vandivert and Mills removed at necropsy 1446 objects from the stomach of an insane mulatto woman.

Von Quast, 9 oz. of broken glass and several other articles.

Halstead removed 74 gms. of crushed glass and 208 other objects including 21 pieces of dog chain, 4 watch chains, 1 brass chain, 2 pieces of chain, 10 horse shoe nails, 54 wire nails, 35 ordinary nails, 8 screws, 2 screw eyes, 7 knife blades, 1 knife handle, 50 tacks, 12 pins, and one piece of tin.

A number of other surgeons including Inch, Warbasse, Heinze, Marks and Kortman report similar cases.

Coming under another class of foreign bodies found in the stomach and intestines is the phytobezoar or food ball which is composed of food materials such as skins and fibers of fruit, colloid portions of vegetables and starch granules, with an occasional small amount of organic material, frequently surrounding fruit seeds. The process by which these food balls are formed is not definitely understood, but it is probable that the gum and pectin contained in the persimmon and other fruits, combined with the muscular activity of the stomach, can be considered as a more or less direct cause. It is generally considered that they occur at one particular time, possibly within a few hours after the ingestion of a quantity of fruit, very often the persimmon. It is not definitely known whether the bezoar is formed to its full size at one time or whether the size is gradually increased by the addition of food particles. In the majority of cases reported, the patient suffers with acute symptoms of indigestion

but occasionally the symptoms are chronic and extend over a period of years. Before 1924 only 14 cases of phytobezoar had been reported. A few cases have been reported in which the bezoar was composed of the cocoanut fiber.

Possibly the most interesting of all the foreign bodies found in the stomach is the trichobezoar or hair ball, which in comparison with all the other foreign bodies is of rather common occurrence, there being reported in 1923 about 108 cases, 47 of which were operative, while the total number of cases of foreign bodies in the stomach for which gastrotomy was performed, collected and reported by Friedenwald and Rosenthal was ninety.

A few cases of hair balls in the stomach have been found in men but the larger majority were in women under the age of 20, the youngest being a girl age 6, and the oldest a man age 52. This predominant tendency in the female sex is undoubtedly due to the custom of young girls wearing their hair long, loose and flowing over the shoulders. This established the practice of biting the hair or passing strands through the mouth or between the teeth. This is most likely the reason hair balls have been practically confined to the female sex and accounts for the greater frequency at an age corresponding to the period when the hair is worn long and loose. According to this theory and taking into consideration the modern methods of hair cutting among the women, we cannot expect the number of cases of trichobezoars to increase in the future as they have in the past.

These hair masses vary greatly in size, the largest one reported weighing six pounds.

Contrary to general belief, insanity or mental derangement does not appear to play an important part in the causation of the hair eating habit. Out of the 108 reported cases only four have been insane.

The tumor usually consists of a large compact accumulation of hair varying in length and forming a complete cast of the cavity of the stomach. When they are fully developed they correspond to the letter "J". Sometimes the accumulation is multiple instead of being

in one mass. As many as 3 distinct masses have been found.

The case which has come under our own observation is one of a trichobezoar, or hair cast.

The patient was a married woman age 20, with a negative past history except that she admitted to biting her nails and swallowing buttons. She was a girl of average intelligence but her personality was quite different from that of any other member of her family. She had completed the first three years of high school. She was married in 1922 and became pregnant at the first menstrual period. During pregnancy she was never nauseated and never vomited. She was slightly nervous at times but aside from this was in perfect health and able to eat anything she desired. She did not suffer from any dyspnea or unusual pressure symptoms. The birth of her baby was perfectly normal, period of labor eight hours and not associated with a great deal of discomfort.

Immediately after the birth of her child she noticed a lump in the epigastric region which to her felt hard and was movable. There had been no discomfort previous to this time and none at the time except when stomach contained no food. This was slight but five weeks previous to our first examination her pain was becoming more noticeable and was paroxysmal in character. This gradually increased in severity until to get relief she would eat every few hours during the day and often get up and eat during the night.

Physical examination was negative except for the presence of a large mass in the epigastric region which corresponded in shape and position to a very large stomach. It was hard and freely movable. Descended with deep inspiration. A test meal was given and the stomach contents obtained was 20 c. c., free hydrochloric acid was absent and the total acidity was 5 degrees.

Fluoroscopic examination showed 18 hours barium in the cecum, colon and sigmoid. No spastic condition. No obstruction. Stomach two finger breadths above iliac crest. Duodenal bulb brought out without any difficulty. No evidence of peristalsis.

Radiograph: Stomach lying in a hammock formed by the colon, about two and one-half times normal size. No evidence of peristaltic wave. Along curvatures barium is denser than in the middle. This is especially noticeable along the greater curvature. Enlargement of the stomach continues under costal border.

A diagnosis of this case was not made but an exploratory operation was advised.

An upper mid-line abdominal incision was made and the stomach was easily lifted out of the abdominal cavity and walled off with wet towels. A transverse incision was made in the stomach wall and a large hair ball which formed a complete cast of the cavity of the stomach was removed. The incision in the stomach wall was closed with three rows of cat gut suture. The abdominal incision was closed in the usual way. The patient made an uneventful recovery. The hair cast at the time of removal weighed two and one-half pounds and measured eight inches in its longitudinal diameter and five and one-half inches in its widest transverse diameter.

The history of these tumors only illustrate the extreme tolerance of the stomach to foreign bodies and its wonderful adaptability to the most disturbing mechanical obstacles in the normal exercise of its function.

DISCUSSION

DR. WILLIAM NEILL, Jr., Baltimore, Md.:

I should like to ask Dr. Langfitt what was the characteristic appearance of the stomach, what it looked like and what it felt like before he opened it.

DR. J. E. RADER, Huntington:

This discussion of foreign bodies in the stomach is a very interesting one. The variety of objects of extrinsic origin encountered in the stomach seems to be limited only by the ability of the oral-esophageal tract to transmit such objects. I have had recently a very interesting case of a man, an adult, who complained of gas in the stomach. In order to relieve himself of this gas he rigged up an apparatus out of a rubber tube and introduced it into his stomach, to get the gas off his stomach, as he explained. I do not know whether he got the gas off, but he let the tube go into his stomach. He was

brought to the hospital and an x-ray taken, which showed the tube in the stomach. You can see it (showing picture) extending clear across; it was too long, of course, and had to curl up here at one end to accommodate itself to the stomach. The tube was removed.

One of the peculiar things about this case is that he claims he introduced this tube to relieve the gas on his stomach, but he had both ends of the tube stopped up tight. I can not figure how he imagined that he could get the gas out of his stomach. Of course, you will at once decide that this man was insane. He was not an inmate but had charge of the engine house at the State Hospital. What effect his environment had on his mental condition I am not prepared to say. Another peculiar thing is that four years before this same person had performed the same operation on himself, with the same result. Two operations were performed. The two tubes were of about the same size.

DR. CHESTER R. OGDEN, Clarksburg:

I had an opportunity once, while I was a student, of seeing an operation done on a professional swallower. A professional juggler went into the medical school. The students were too shrewd for him and required him to strip to the waist, so that he could not conceal the objects and was obliged to swallow them. He then immediately went

to Hopkins and stated that he had swallowed them and asked for an operation, and I remember that a whole basinful of pieces of iron, etc., were removed from his stomach.

DR. LANGFITT, closing the discussion:

In answer to Dr. Neill's question, I said very frankly in my paper that I did not make the diagnosis of this mass previous to operation. When I got the abdomen open I was very anxious to find out to just what portion of the stomach wall this was attached. I picked up the stomach wall and felt it all over the mass, trying to find to which part of it the mass was attached. In picking up the stomach wall it looked normal and felt normal; there was no particular change in the stomach wall.

In regard to Dr. Rader's remark, in reviewing the literature I have found that a good many of the cases of foreign objects swallowed, such as metal, etc., occurred in the insane, that the large majority of those patients were insane; but comparatively few were insane among those who ate this hair; it was just a habit which young girls have of chewing their hair. After operating and removing this mass I was able to get more history on this case. I found she had been in the habit of chewing her hair for years, that even when a school girl she had the habit of drawing her hair around into her mouth and chewing it.

EXTRA-UTERINE PREGNANCY *

By C. B. PRIDE, M. D.
Morgantown, W. Va.

A COLORED woman thirty years of age was admitted to the gynecological service, Lakeside Hospital, Cleveland, in October, 1925. Her chief complaint was the presence of a tumor in the lower abdomen. She observed it for the first time four years prior to admission. During the first six months it gradually enlarged until it reached the size of a grapefruit. Since that time it has remained practically the same size. Four months before she noticed the tumor a curet-

tement was done for vaginal bleeding, which followed a missed menstrual period. Five years ago she had a miscarriage (seven months). The only other symptom was a heavy sensation in the lower abdomen.

Examination of the abdomen revealed a round, smooth mass about the size of a large grapefruit in the midline below the umbilicus. In the bimanual examination the body of the uterus could not be definitely made out, but the mass seemed to be connected with it. The diagnosis of fibroid of the uterus was made. Just above the symphysis a crepita-

* Read before the Monongalia County Medical Society, July 5, 1927.

tion similar to that obtained in sub-cutaneous emphysema was elicited, but no particular importance was placed on this finding.

On opening the peritoneum a large, firm mass about six inches in diameter was encountered. It was surrounded by omentum and bowel, both of which were adherent to it. The uterus was normal in size and adherent to the anterior surface of the tumor. The right tube and ovary were not identified, and the left tube and ovary were normal except for a few adhesions. The tumor was accidentally open during the operative procedure and a thick grayish fluid escaped. Further inspection showed the presence of fetal bones symmetrically arranged. The specimen was not dissected.

Here we have a five months extra-uterine pregnancy, probably tubal, of four years' duration. It may be that the extra-uterine pregnancy existed at the time when the curettement was done four years ago and was mistaken for an intra-uterine pregnancy, or the patient may have had a pregnancy within and without the uterus at the same time.

The crepitation was caused by the rubbing together of the fetal bones. Had this sign been more carefully considered a correct diagnosis might have been made. Unruptured ectopic pregnancy is difficult to diagnose. Usually no symptoms are present and the patient does not consult a physician.

Pain and the history are the most important signs in a ruptured extra-uterine pregnancy. Vaginal bleeding following a period or missed period, and quite often the period

is not delayed, accompanied by abdominal pain in one or the other lower quadrants of the abdomen should immediately cause one to think of a ruptured tubal pregnancy. The vaginal bleeding does not come from the ruptured vessels above, but from the uterus and usually it is small in amount. This is an important thing to keep in mind. In the ordinary abortion the bleeding is usually profuse. The presence of chorionic villi in the decidual casts, which quite often are passed per vagina is conclusive proof that the pregnancy is intra-uterine. In extra-uterine pregnancy no chorionic villi are present in these decidual casts. Uterine decidua is present in both types of pregnancy.

Vaginal examination is important. This very often is difficult to do as the mass usually is small and in a ruptured tubal pregnancy the tenderness is quite marked. When done under anesthesia extreme care should be used as there is danger of causing excessive hemorrhage. In most of the ectopics that have ruptured bleeding in the abdomen is not excessive, but in cases where marked abdominal bleeding is present one often may palpate a bulging fluctuating mass in the cul-de-sac. Most of the other pelvic conditions must be differentiated from this condition. Pelvic inflammatory diseases are probably the most difficult to differentiate.

The treatment of ruptured extra-uterine pregnancy is immediate operation, even though the patient's condition is serious. If the hemorrhage is excessive a blood transfusion should be done.

SOME ORAL CONDITIONS AND THEIR RELATION TO OUR SPECIALTY *

By C. B. ROHR, M. D.

Alum Bridge, Va.

THE PRIMARY object of this paper is to present a few conditions, which though not common, do occur and are accompanied by certain difficulties in their recognition. It makes no pretention at being scientific or original. No references are made, and the descriptions are brief to the extreme.

It is more a relation of personal observations, and some of the deductions might be open to question. Yet because these cases were carefully studied, over considerable periods of time and the outcome of all but one, observed, they are presented with the feeling that they represent the writer's most capable judgments.

* Presented to the Eye, Ear, Nose and Throat Section at the Sixtieth Annual Meeting of the West Virginia State Medical Association, White Sulphur Springs, on June 23, 1927.

Although the mouth contains the teeth, one of the most fertile causes of human disease and suffering, and is distinctly within our domain, it is seldom given any very serious thought by the average eye, ear, nose, and throat specialist except as an approach to the respiratory tract and as the seat of the tonsils. He is generally satisfied to refer his patient to the dentist for examination, diagnosis and treatment of all conditions concerning the teeth.

The mouth including the teeth and tongue form an integral part of our field of work and deserve our own individual consideration just as much as the nose or the eye or the ear—perhaps more so, since it is well known that many of the diseases of these organs have their origin in the mouth. There are, however, conditions arising in the oral cavity which claim our attention, not alone because of their being in the mouth, but because they may so closely simulate other well known diseases of our specialty as to tax our skill to the very utmost in arriving at a true diagnosis. I refer mainly to impacted wisdom teeth. Many of these cases actually go unrecognized, and the patients allowed to suffer for years, or what is worse, become the victim of misdirected operations.

The eruption of a wisdom tooth is frequently a very irregular affair. It may point backward and the posterior half remain covered a long time, giving rise to a very sore jaw, or, it may point outward or inward causing the cheek or tongue to be frequently bitten and later become a possible cause of malignancy. Or again it may point forward and become impinged under the adjacent molar. If the wisdom tooth just strikes against the crown of the second molar it will give rise to a severe neuralgia, usually in that immediate neighborhood. All of these conditions may be easily recognized by simple inspection of the mouth. But, when the wisdom tooth lies flat on its side in the jaw bone, or comes directly up under the second molar, it is then that it may give rise to remote symptoms suggesting anything but the true cause. And since it is impossible for the tooth to get out where it can be seen, we must be extremely careful or our patient will be treated as a tubercular

subject, or as a neurasthenic or operated on for mastoiditis or some other condition which it may resemble. The absence of a wisdom tooth in an adult, without the history of its extraction, should always lead us to suspect it as the cause of any obscure pain about the head, and to make a thorough investigation by means of a roentgenogram.

The predominating symptom of this condition is pain, the position of which may or may not depend upon the location of the impacted tooth, and which may be most severe, or simply nagging. Other misleading symptoms are rise of temperature, cough and nervous upset. These were present in all the cases observed. The cough was slight and the temperature rise moderate but very definite, except one case where it exceeded 101. No attempt is made here to satisfactorily explain these symptoms.

A few instances of personal observations will serve to bring this more clearly to you and substantiate the statement that many of these cases go unrecognized and improperly treated.

The first was that of a woman well up in thirty, who had suffered periodical attacks of so-called migraine, for several years. These attacks slowly increased in frequency and were of such severity that an opiate seemed justifiable to relieve them. She had a constant cough which was slight and hacking, and carried an afternoon temperature around 99 and 99½. Time after time she was examined for tuberculosis but nothing could be found in her lungs. She had gone the rounds of general practitioner, surgeon and specialist. Being the possessor of a suspicious appendix she had that removed. A prolapsed ovary called for another abdominal operation. She had a septal spur which demanded a submucous resection and there were numerous refractions and as good dental service as could be obtained. As was to be expected in such a case, she had developed a ptosis of the abdominal viscera which was treated by six weeks in bed with her heels higher than her head. All these misdirected efforts had been put forth by good men—many of whose names are very familiar far outside of their own city and state, and for the sole purpose of relieving

her of her migraine like attacks. But nothing gave any lasting benefit until, years later, two unerupted wisdom teeth lying lengthwise in that hard portion of the mandible were found and removed.

The next case was a young woman teacher, who complained of a nagging pain in her right mastoid. There was tenderness over the mastoid tip and more or less over the whole mastoid. She carried an afternoon temperature between 99 and 100 and had a slight cough. The external auditory canal and drum however, gave no indications of disease in that neighborhood. These symptoms and signs were constant and followed over a period of about a year during which time they changed but little. Then another surgeon suggested an impacted wisdom tooth which was soon found by X-ray and removed. Within a few weeks the patient's symptoms disappeared and did not return. This was my own oversight and since then I have always been on the lookout for such conditions.

Another case, a girl of twenty, was much more acute and severe. Two weeks before, she had been treated by a physician for some infection in the right lower jaw—perhaps a deep abscess—the patient said it was called blood poisoning. From the history and appearance, the jaw had been greatly swelled and inflamed, and a small pustule had appeared on the surface. Under antiphlogistic treatment these symptoms had considerably subsided so that when she was first seen, there was only moderate swelling, but considerable pain, which was constant, with rigidity of the jaw. Her temperature was 101 and she had a decided cough. The patient stated that her temperature had been much higher. A most careful physical examination was made and every localizing symptom found, pointed to the jaw. No wisdom tooth had erupted at this point. Osteomyelitis, or an impacted wisdom tooth was suspected. An X-ray picture was made and showed the right lower wisdom tooth directly under the adjacent molar. This second molar was removed and the wisdom tooth allowed to remain. On one root of this molar was a facet where the wisdom tooth had been making pressure. After the

removal of this molar the patient's symptoms all cleared up within a few days and the wisdom tooth has since erupted where the molar was removed.

With two exceptions, made because of unusual interest, it is not intended to dwell upon the biggest and most important part of my subject, namely peri apical abscess and oral sepsis in general. The reason for this is, they are voluminously written upon and so familiar to us all that it would seem superfluous to attempt repetition of anything further here. There is none of us but that can recall cases of corneal ulcer, iritis, or retinitis for which no cause could be discovered other than an abscessed root or badly infected gums. They are things that every one has had drilled into him; that we very frequently read about in medical journals; and that we are always on the lookout for.

One of the exceptions I wish to make, was a temporary paralysis of an external ocular muscle. The patient was a woman in forty who suddenly developed an extreme strabismus of the right eye. The squint came on out of a clear sky, so to speak, a few days before she came to my office. A careful physical examination was made including a Wasserman test and no possible cause of this phenomenon could be discovered unless it was due to two badly infected teeth—the upper canine and cuspid of the same side. They were simply rocking in beds of pus. This was accepted as a probable cause—the two teeth were removed and the sockets thoroughly curetted and treated two or three times. The eye was covered and a placebo given. In six weeks the eye had straightened up completely. The sight was unimpaired and the patient resumed bifocal vision. The maxillary sinus on this side did not show any disease and was not treated, leading one to believe that the trouble was not due to a direct extension of the inflammation through this sinus.

The other case is one of fungus infection. With few exceptions, in our latitude, fungus disease in mankind is not a very common condition. Every general practitioner, however, is well acquainted with the ring worm fungus, but we are not so familiar with the

mycoses in general, although a great variety of them occasionally attack the skin, the digestive tract, the liver and more rarely other organs. One of the most common, the aspergillus, is met by the otologist, and it is not an every day occurrence by any means. The essential lesion of most types, either internal or external, is the nodule, and the most outstanding character chronicity.

The case I wish to describe is one in which the whole mucous membrane of the mouth was involved. The patient is a man 55 years old. He has always had fair health except asthma which seems to be a familial inheritance. He has four brothers and three sisters living, all of whom are in good health. One brother and one sister died in early childhood from diphtheria. He had diphtheria at the age of 13 and recalls that at that time he was given a gargle that looked like buttermilk and was extremely sour. Not long after this attack (within a year or two) he noticed a small hard nodule on the inner side of the upper gum. This nodule never disappeared and did not noticeably enlarge, nor did any others appear for many years. It never bothered him any and he paid little attention to it though he is sure it was the same as that which covers the whole mucous membrane of his mouth now. Five years ago the disease was not sufficiently advanced as to attract attention. Some two years ago he had his upper teeth all extracted and four months ago the lower ones. Soon after the extraction of his lower teeth he came to my office on account of very sore gums. On looking into his mouth at this time one could not help seeing the disease which now covered the whole mucous membrane of the mouth including the upper and under surfaces of the tongue and back to the tonsillar pillars. About one-sixth of the surface of both alveolar processes and the folds where the mucous membrane passes over to the cheeks were covered with a white horny-like substance elevated 1 to 3 millimeters and so hard and adherent that it could not be scraped loose from the mucous membrane. There were also patches of this about the center of each buccal surface. All the rest of the mucous membrane of the mouth including the

tongue was covered with a thin white coating giving the appearance of any mucous membrane, after the application of a strong solution of nitrate of silver.

The patient stated that after he began having crowns put on, and teeth extracted the disease made much more rapid progress than it had prior to this date. It gave him very little discomfort except the feeling of a hard substance in his mouth.

A piece of the horny nodular deposit was shaved off and sent to the National Vaccine and Antitoxin Institute at Washington, for examination. They reported the findings of a fungus which they were unable to classify, but most nearly resembled *Malassezia fur*.

Under large doses of the iodide of potash the thin film over the tongue and mucous membrane has entirely disappeared, and the horny layers have softened and reduced to such an extent that the patient can easily notice it by the sense of touch, and his mouth feels much better than he imagined it could feel. He has been under treatment about two months and is taking 30 to 40 drops of the saturated solution three times a day.

Cholecystography

L. R. Whitaker, Boston (*Journal A. M. A.*, Jan. 23, 1926), states that at the Peter Bent Brigham Hospital the intravenous method of administration of sodium tetra-iodophenolphthalein has been employed with sixty patients, 8 per cent of whom showed reactions severe enough to cause headache, and nausea and vomiting, but in no case dangerous. In twenty-eight of these patients on whom exploratory laparotomies were made the diagnosis by cholecystography proved to be correct in 93 per cent, as against 70 per cent by clinical methods. Through the cooperation of a firm of manufacturing chemists, an oral method for the administration of sodium tetra-iodophenolphthalein in "enteric" coated pills has been developed. The dosage used is 5 grains (one pill) for each 10 pounds of body weight (up to twenty pills) in stout patients (0.3 Gm. for each 4.5 Kg.), and 5 grains for each 12 to 15 pounds of body

weight in thin patients (0.3 Gm. for each 5.4 to 6.8 Kg.). The instructions to the patient are as follows: A light supper without meat is eaten at 6 p. m. Starting at 8 p. m., four pills are taken with half a glass of water every half hour until the required number is taken. During this process the patient should lie on his right side and for an hour or more thereafter, drinking considerable water until bedtime. (This facilitates the passage of the pills through the pylorus.) The pills must not be broken. No cathartic must be taken. No food must be eaten until after the first roentgenogram is made. The roentgenographic technic is that usually employed for gallbladder work, the Bucky diaphragh being used, and several exposures being made at a sitting. Of the first 100 persons given the drug orally, sixty-eight suffered no reaction, eight had nausea, twelve had nausea and vomiting, and twelve had diarrhea. None of the reactions were severe enough to be at all alarming. Out of twenty-five supposedly normal subjects in the series, twenty-three showed gallbladder shadows. With approximately half of the seventy-five patients, no shadows were obtained. Most of these, however, had histories suggestive of gallbladder disease. Out of thirteen of these patients showing no shadow by the oral method, eleven were subsequently checked up by the intravenous method and shown to have a pathologic condition of the gallbladder. Whitaker believes that the intravenous use of sodium tetra-iodophenolphthalein is a safe and reliable diagnostic procedure. The advantage of the oral method as compared with the intravenous is that, though not as reliable, it is more convenient and can be used in ambulatory patients. Cholecystography furnishes a means for the study of gallbladder function. Whitaker's observations supported by others seem to prove that the gallbladder empties its contents into the duodenum, after the ingestion of foods rich in fat, for the purpose of digestion. Evidence has also been obtained which reflects doubt on the value of non-surgical biliary drainage by magnesium sulphate, since the gallbladder drains more

completely after the ingestion of fat than after the intra-duodenal administration of that drug.

Frontal Sinusitis

While osteomyelitis of the frontal bone under any circumstances is a comparatively rare and serious affection, as evidenced by the limited number of cases (fifty-five with thirty-seven deaths) reported in American and European literature, those cases which develop spontaneously or fulminantly are still rarer, with death resulting in all cases reported. One of the latter, with recovery of the patient, is reported by A. E. Bulson, Jr., Fort Wayne, Ind. (*Journal A. M. A.*, Jan. 23, 1926). The interesting feature in connection with this case is that the osteomyelitis was of sudden development, and that apparently the inciting cause was trauma, with perhaps injury of the outer bony wall of the frontal sinus at the root of the nose, even though there was no discoverable break in the skin surface. There was no means of proving definitely the route traveled by the infection. It is probable, however, that there was a latent infection of the frontal sinus, which required only a lowered resisting power and the inciting trauma (a slight blow from a screw) to start a pyogenic process in the bone structures. Concerning treatment, Bulson believes that most will be accomplished by the open treatment of the wound after thorough removal of all the diseased bone. Ventilation as well as drainage aids the recovery of these pyogenic processes, and the penetrating and antiseptic effect of some of the dyes, particularly mercurochrome-220 soluble used locally, aids in limiting the progress as well as destroying the infection. He has little faith in vaccines. Once osteomyelitis has set in, the only chance of saving the patient lies in the immediate and entire removal of the diseased bone. The superficial area of the bone resected must exceed the obvious limits of the disease. The resection must be radical, and in doubtful areas it is safer to remove bone than to leave it.

THE WEST VIRGINIA MEDICAL JOURNAL

JAMES R. BLOSS, *Editor-in-Chief* - - - - - Huntington

...ASSOCIATE EDITORS...

J. HOWARD ANDERSON
Marytown

WALTER E. VEST
Huntington

C. A. RAY
Charleston

HARRY M. HALL
Wheeling

THE JOURNAL issued on the first of each month. Entered as second-class matter, January 1, 1926. Acceptants for mailing at special rate of postage provided for in Section 1103, Act of October 3, 1917. Authorized July 24, 1919.

Subscription to Members.....	\$2.00 Per Year
Subscription to Non-Members.....	\$3.50 Per Year
Single Copies.....	50 Cents

OFFICERS

<i>President:</i>	C. A. RAY.....	Charleston
<i>First Vice-President:</i>	D. G. PRESTON.....	Lewisburg
<i>Second Vice-President:</i>	E. L. ARMBRECHT.....	Wheeling
<i>Third Vice-President:</i>	W. C. SWANN.....	Huntington
<i>Executive Secretary:</i>	MR. JOE W. SAVAGE.....	Charleston
<i>Treasurer:</i>	T. MAXFIELD BARBER.....	Charleston
<i>Delegates to A. M. A.:</i>	JAMES R. BLOSS (1927).....	Huntington
	HENRI P. LINSZ (1927-28).....	Wheeling
<i>Alternates:</i>	A. A. SHAWKEY (1927).....	Charleston
	HARRY M. HALL (1927-28).....	Wheeling

COUNCILLORS

<i>Chairman of the Council for 1928:</i>	R. H. DUNN.....	South Charleston
<i>First District:</i>	H. R. JOHNSON (1-year term).....	Fairmont
	C. G. MORGAN (2-year term).....	Moundsville
<i>Second District:</i>	C. H. MAXWELL (1-year term).....	Morgantown
	C. H. HALL (2-year term).....	Elkins
<i>Third District:</i>	JOHN FOLK (1-year term).....	Bridgeport
	I. D. COLE (2-year term).....	Clarksburg
<i>Fourth District:</i>	J. E. RADER (1-year term).....	Huntington
	W. E. VEST (2-year term).....	Huntington
<i>Fifth District:</i>	J. HOWARD ANDERSON (1-year term).....	Marytown
	H. G. STEELE (2-year term).....	Bluefield
<i>Sixth District:</i>	R. H. DUNN (1-year term).....	South Charleston
	H. A. WALKUP (2-year term).....	Mt. Hope

¶ All original articles for THE JOURNAL must be made to it exclusively. Communications and items of general interest to the profession are invited from all parts of the state. Notices of deaths, removals from the state, changes of location, etc., are requested.

¶ Our readers are requested to send marked copies of local newspapers containing matters of interest to members of the medical profession. Name of sender should be given.

CONTRIBUTIONS TYPEWRITTEN

¶ Contract with present printer specifies all articles, communications, etc., MUST BE TYPED.

ADVERTISEMENTS

¶ Advertising forms will go to press not later than the tenth of each month. All advertisements must conform to the standard established by the Council of Pharmacy and Chemistry of the A. M. A.

WOMAN'S AUXILIARY

Mrs. R. V. Shanklin, Gary, President; Mrs. T. H. Harris, Parkersburg, vice-president; Mrs. W. C. Swann, Huntington, secretary; Mrs. W. D. Simmons, Slab Fork, treasurer.

Councillors

Mrs. C. G. Morgan, Moundsville, first district; Mrs. Ralph Maxwell, Morgantown, second district; Mrs. H. D. Price, Parkersburg, third district; Mrs. J. R. Bloss, Huntington, fourth district; Mrs. A. G. Rutherford, Welch, fifth district; Mrs. E. S. DePuy, Beckley, sixth district.

Delegates to Woman's Auxiliary of A. M. A.

Mrs. R. V. Shanklin, Gary; Mrs. B. S. Preston, Charleston. Alternates—Mrs. George Jeffers, Parkersburg; Mrs. W. B. Scherr, Morgantown.

STANDING COMMITTEES

Medical Defense Committee

R. H. Dunn, South Charleston, chairman; C. G. Morgan, Moundsville; I. D. Cole, Clarksburg.

Committee on Scientific Work

R. U. Drinkard, Wheeling, chairman; O. B. Biern, Wheeling; A. H. Hoge, Bluefield.

Public Policy and Legislative Committee

R. A. Ireland, Charleston, chairman; R. H. Walker, Charleston; James McClung, Richwood; C. R. Ogden, Clarksburg, D. A. MacGregor, Wheeling.

Committee on Medical Education

John N. Simpson, Morgantown, chairman; W. T. Henshaw, Charleston; W. S. Fulton, Wheeling.

Committee on Professional Relations

John R. Shultz, Charleston, chairman, (1-year term); A. G. Rutherford, Welch, (2-year term); W. R. Goff, Parkersburg, (3-year term); Hugh G. Nicholson, Charleston, (4-year term); E. P. Smith, Fairmont, (5-year term)

Workman's Compensation Committee

W. A. MacMillan, Charleston, chairman; J. Ross Hunter, Charleston; R. H. Walker, Charleston.

Committee on Public Health

David Littlejohn, Charleston, chairman; John Thames, Charleston; Will McLain, Wheeling.

Surgical Section


Wade H. St. Clair, Bluefield, chairman; John E. Cannaday, Charleston, secretary.

Eye, Ear, Nose and Throat Section


E. C. Hartman, Parkersburg, chairman; I. D. Cole, Clarksburg, secretary.

Hospital Association Officers

H. F. Spillers, Wheeling, president; L. W. Lawson, Logan, president-elect; J. E. Wilson, Clarksburg, first vice-president; R. A. Ireland, Charleston, second vice-president; J. S. Turk, Wheeling, treasurer.



EDITORIALS



Anti-Tuberculosis Campaign

During March of this year an intensive educational campaign will be conducted throughout the United States by the various tuberculosis associations with a view to emphasizing the importance of the early diagnosis of tuberculosis. An attempt will be made to educate the laity upon the symptoms of early tuberculosis and to urge upon the individual the necessity of going to a physician for examination. Likewise the importance of careful examination and the recognition of the early physical signs of the disease will be urged upon the medical profession. Billboards, the daily press, magazine articles, pamphlets, movies, health meetings and medical societies will all be used in getting proper publicity for this most important piece of educational work.

Elsewhere in this issue we publish an article anent tuberculosis from the pen of an eminent West Virginian, Dr. John G. Petit, of Hopewell. Situated as he is, Dr. Petit is able to draw more worthwhile conclusions on the subject of the great white plague than anyone else in our mountain state. The two essential factors he points out in securing an early diagnosis are: (1) the appreciation by the layman of the early danger signs of tuberculosis; and (2) the absolute necessity of the physician's doing a careful examination and making a proper evaluation of his findings. Dr. Petit's criticism of the medical profession is, in the writer's opinion, largely justifiable, but we submit the fact that a doctor cannot make a diagnosis, early, advanced, or whatnot, until the patient presents himself for examination.

Long experience in chest diagnosis has impressed upon us the opinion that the average person suffering from tuberculosis does not consult a doctor until his lesion

is at least moderately advanced. In the final analysis then, the most important step in making an early diagnosis is to educate the laity in the early symptoms of the disease. The five danger signs we would stress, any one of which should cause a person to consult a physician, are: (1) easy fatigability; (2) weight loss; (3) indigestion; (4) persistent cough; (5) spitting of blood. All these five danger signals are readily appreciable to the average layman and any one of them should send him to his doctor for examination.

From the standpoint of the physician, the diagnosis of tuberculosis in the early stages is not always an easy problem by any manner of means, at least not for the writer. Even with due care in the physical examination and the use of all mechanical and laboratory aids at our command, there are cases which require prolonged observation before an absolute opinion can be given. The lesson for each individual doctor to learn is to master and use the means at his command. Not all of us have access to the microscope and the roentgen ray, but we can all take a history and we are all possessed of eyes, ears, hands, clinical thermometers and stethoscopes, and we can strip our patients to the waist for chest examination. However, laboratory aids are not to be decried. The fluoroscope may be of considerable value and in all questionable cases stereoscopic plates of the chest should be made. When possible to secure a specimen, the sputum should be examined. The Wassermann reaction is at times illuminating, and a urinalysis should always be done. When indigestion is the presenting symptom and the chest findings are not clear cut, a gastrointestinal examination may disclose the true nature of the malady. In certain instances the metabolimeter may be used to advantage. In short, when we are examin-

ing a borderline case, no diagnostic stone should be left unturned.

The educational campaign directed to the laity should stress not only the early danger signs, but the fact that early recognition should mean early treatment which in turn means early cure. In mathematical parlance the morbidity duration may be said to vary directly as the duration from onset of the disease to onset of treatment. Attention should be specifically directed to the fact that indifferent and half-hearted treatment avails little and that nowhere else in the whole realm of disease do common sense and "stick-to-it-iveness" count for so much as in the battle against the bacillus of Koch. Fools do not recover from tuberculosis.

The psychology of the disease calls for some mention when dealing with the lay aspect of the problem. The idea that tuberculosis is a disgrace is widely prevalent and this in some measure accounts for the fact that so many late diagnoses are made, the patient consulting his medical adviser, only when driven to it by stern necessity. Tuberculosis is a serious misfortune, but it is not a disgrace and if the populace generally are instructed on this point fewer people will dread to learn the truth about what their symptoms actually mean. In the great majority of instances it is best to tell the patient frankly the actual diagnosis, for it is only by this means that we can secure their full cooperation in the treatment, an absolute necessity if the maximum therapeutic benefit is to be realized—W.E.V.

New Remedies

We are inclined to believe that physicians in general are too ready to prescribe new pharmaceuticals, chemicals and biological products without first carefully considering their physiological effect and their adaptability to the individual patient. The manufacturer will send us samples of their products with literature, extolling their virtues, which by the way is perfectly legitimate. The bureau of investigation will have given them their approval as official or non-official

remedies, but this does not justify their indiscriminate use.

We long ago learned our lesson of the oft-times serious consequences of introducing foreign proteins into a person's body whose blood had been previously sensitized by some other like substance. We have observed severe reactions from many of the various vaccines in persons whom we would least expect it. Who of us has not seen alarming conditions follow the use of the arsenical preparations or the acute nephritic symptoms after administration of mercurials. There is scarcely a week that some new preparation derived from coal tar is not offered and recommended to us as non-depressant and harmless.

We are not condemning any new drug or remedy. They all have a place in our therapeutic efforts to combat disease, and it is through them that the science has made wonderful advancement. What we do condemn is their indiscriminate use before we have personal experience with them. Taking nobody's word for their effects until you have tried them out on carefully selected patients, giving dosages too small rather than an over dose by which you may do your patient much harm, with a remedy potent for good if properly administered.

Salvarsan which is most universally used, produces the most severe reaction with the initial dose, due in most cases to over dosage. The same conditions apply to mercurochrome and many vaccines and serums. The psychological effect of these reactions is not very pleasing to the patient, and may be, in most instances, avoided.

We do not assume a "show me" attitude, but insist that we should be a little skeptical about new ideas until we have had at least some personal experience. Intelligent skepticism is a justifiable qualification of a therapist.

—C.A.R.

Joint Meeting Set

In order that the West Virginia State Medical Association may get together with the State Health Council on some much-needed changes in the Medical Practice act,

a joint meeting of the two organizations has been called at Charleston for the evening of February 9, 1928. The State Health Council will be in session here at that time and representatives from practically every component medical society in West Virginia are expected to be on hand.

The call for representatives of the state association to meet with the health council was sent out several weeks ago by Dr. C. A. Ray, president. In addition to the representatives of the county societies, it is understood that many of the officers of the state association will be on hand to take part in the discussion.

Dr. Ray is of the opinion that a great amount of 'good will' come from this joint meeting and believes that through proper cooperation some much needed legislation can be secured in 1929. He pointed out that many of our legislative failures in the past were due to differences of opinion between the state medical association and the health council and he is anxious to secure a complete understanding on all questions pertaining to medicine so that the efforts of both organizations can be thrown together into the next legislative fight.

Hail Chiropractor!

[EDITOR'S NOTE: In connection with Senate bill 2026 to create a board of Chiropractic Examiners of the District of Columbia, introduced on January 4, 1928, by Mr. Capper, the following has been submitted by Dr. Harry M. Hall of Wheeling.]

We will probably all admit that the world is becoming so complicated in its every day happenings that it is not given to very many to come anywhere near in the proper interpretation of them. Let anyone—or any given organization—take a particular view of a matter and straightway a number of people will combat it. Very often in these frays experience counts for nothing. There is so much to think about and reflect upon and so little real thinking or reflecting done that the superficial attention of the crowd can be fixed not only by the trivial but by the spurious.

We are nevertheless surprised that an aspirant for the presidential office should be the man selected to introduce a chiropractic bill into the United States Senate even if by chance he does not believe it has anything but good about it. As we do not know how he stands on its merits we are in no position to say whether he is merely an agent or a believer in chiropractic. But we do know that so far as political sagacity is concerned, Mr. Capper is lacking in the finer qualities.

We are unable to visualize Mr. Coolidge or Al Smith, or even some of our first-class politicians in this state, than whom none is more wise, allowing themselves to be caught in any such a position even if they had had a little handiwork done on their own vertebrae the week before.

As far as we personally are concerned, Mr. Capper is in the discard. We belong to the same political party he seems to belong to now and then, but from now on we would have our doubts about him—not as to his honesty or his intention but as to his sagacity; his subtlety; his shrewdness.

The medical profession of America is trying its best to avoid politics, very largely because the profession believes politics beneath its notice. But that will not matter eventually. Surgeons and internists alike will in the not too distant future have to either enter the political arena or be counted down and out.

—H.M.H.

Collect Dues Now

The annual dues for 1928 have already started to come in. Remittances have been made from the Ohio, Mingo, Central West Virginia, Fayette and Monongalia County Medical Societies. Many other county societies will have reported dues to the office of the executive secretary by the time the *Journal* is off the press.

Now is the time for all county secretaries to get busy. Collect your membership dues as soon as possible so you can give your energy to the real activities of your society. It is easier to collect membership dues during the first two months than during the last ten. Let's have our membership 99 per cent by March first.

—C.A.R.



NEWS NOTES OF COMPONENT SOCIETIES



McDowell County

Dr. S. A. Daniels of Welch was elected president of the McDowell County Medical Society at the final 1927 meeting held on December 14 in the offices of Welch Hospital No. 1. Dr. Rush Lambert of Coalwood was selected as vice president, Dr. A. G. Rutherford of Welch as secretary and Dr. H. G. Camper of Welch as treasurer. There were 19 members and three visitors present.

The scientific paper of the evening was presented by Dr. R. R. Stuart of Bluefield on "Alimentary Intoxication in Children." This was a very interesting paper and was discussed by Dr. J. C. Killey, Dr. H. G. Camper, Dr. C. R. Hughes, Dr. W. C. Hall, Dr. Manuel Justo, Dr. G. L. Straub and Dr. S. A. Daniels. In the absence of Dr. R. V. Shanklin of Gary, the meeting was presided over by Dr. Daniels.

New applicants elected to membership in the McDowell county society on December 14 were Dr. J. F. Cadman of Marytown, Dr. C. E. Dyer of Roderfield, and Dr. J. C. Harrison. Visitors attending the meeting were Dr. Justo and Dr. W. R. Counts of Welch.

Delegates elected to the annual meeting of the West Virginia State Medical Association at Fairmont in May were Dr. W. L. Peck of Coalwood and Dr. W. B. Stevens of Eckman. The censors elected were Dr. J. C. Killey of Vivian and Dr. G. L. Straub of Welch. Alternates to the convention will be Dr. Killey and Dr. W. C. Hall of Welch.

Those present were Dr. Killey, Dr. C. R. Hughes, Dr. C. C. Cochrane, Dr. W. C. Hall, Dr. W. B. Stevens, Dr. L. W. Angle, Dr. H. G. Camper, Dr. G. L. Straub, Dr. R. C. Mitchell, Dr. S. A. Daniels, Dr. A. G. Rutherford, Dr. J. L. Sameth, Dr. T. G. Matney, Dr. W. L. Peck, Dr. R. C. Newkirk, Dr. W. M. Junkens, Dr. E. M. Wilkinson, Dr. C. E. Dyer and Dr. Rush Lambert.

A. G. RUTHERFORD, *Secretary*.

Raleigh County

Dr. George W. Johnson of McAlpin was elected president of the Raleigh County Medical Society at the meeting held in Beckley on the evening of December 15. Dr. W. D. Simmons of Slab Fork was selected as secretary-treasurer and the censors chosen were Dr. A. U. Tieche of Beckley, Dr. E. H. Hedrick and Dr. W. W. Hume. The delegates to the state convention in May will be Dr. M. S. Doak of Price Hill and Dr. D. D. Daniel of Eccles. The alternates are Dr. D. B. Jarrell of Beckley and Dr. J. T. Hundley, Jr., of Lillybrook.

The principal address of the evening was made by Dr. W. T. Henshaw, state health commissioner, on "State Health Problems." Talks were also made by Dr. E. H. Hedrick, Raleigh county health officer, and Dr. Robert Wriston, city healthy officer of Beckley.

E. S. DEPUY, *Secretary*.

Tri-County Meeting

The Harrison County Medical Society was host to 100 doctors and their ladies at the Hotel Waldo the evening of December 8, 1927. This meeting was the result of a custom of three years' standing whereby the county medical societies of Marion, Monongalia and Harrison each in succession entertain the other two societies annually. This was Harrison county's party for 1927. Because of the attractiveness of the program the physicians of surrounding counties of Upshur, Randolph, Barbour, Taylor, Lewis and Doddridge were invited and each one was represented.

The chief speaker was to have been Dr. Andre' Crotti of Columbus, O., and Dr. William R. Goff was to open the discussion. The subject for discussion was goiter. However Dr. Crotti, driving through in an automobile, failed to appear at the proper time

and Dr. Goff was pressed into service as the first speaker. Be it said to his credit that he met the occasion most graciously and ably. This extemporaneous speech by Dr. Goff was one of the most instructive and practical discussions of the subject of goiter we have heard. At the conclusion of his address, Dr. Crotti appeared and was given the floor although the time allotted for the papers had passed and the orchestra had begun to tune up for the dance. Dr. Crotti, though tired from his long ride in the cold, delivered a most interesting address chiefly upon the etiology of goiter. He exhibited lantern slides showing findings of his own research work. Dr. Crotti's talk suggested that goiter after all is not due to a deficiency of iodine in the body any more, as he said, than malaria is due to a deficiency of quinine in the body, but that the true cause is perhaps one or more parasitic micro-organisms.

Dr. Crotti and Dr. Goff condemned the use of iodine salt by the general public and such other ill-advised prophylactic measures as the iodization of the public drinking water.

B. S. BRAKE, *Secretary*.

Cabell County

Dr. Henry D. Hatfield of the Kessler-Hatfield hospital, Huntington, was elected president of the Cabell County Medical Society at the December meeting held at the Hotel Pritchard. Dr. J. E. Hubbard was chosen as vice president, Dr. I. I. Hirschmann as secretary and Dr. R. M. Bobbitt as treasurer.

Other new officials of the Cabell society elected or appointed at the December meeting are as follows: Board of censors, Dr. W. E. Vest, Dr. R. J. Wilkinson and Dr. W. W. Strange; professional relations committee, Dr. T. W. Moore, Dr. J. C. Matthews and Dr. J. R. Bloss; delegates to the state convention, Dr. J. C. Matthews, Dr. F. O. Marple, Dr. W. W. Strange and Dr. O. B. Biern; alternates, Dr. R. M. Sloan, Dr. G. D. Johnson, Dr. M. F. Brown and Dr. C. P. Ford.

C. J. WILLIS, *Secretary*.

Ohio County

The first 1928 meeting of the Ohio County Medical Society was held in the Elks Club at Wheeling at 8:30 o'clock on the evening of January 6, with Dr. J. W. Gilmore, president, in the chair. The meeting was featured by a symposium on Lues and the speakers were Dr. William M. Sheppe, Dr. A. L. Jones and Dr. H. T. Phillips, all of Wheeling. A number of the members present took part in the discussion that followed.

Dr. Fielding O. Lewis of Philadelphia spoke on "Laryngeal Cancer," at the meeting of the Ohio County Society held in the Elks Club on December 2. Dr. Lewis is professor of Laryngology at Jefferson Medical College. The discussion was led by Dr. A. K. Hoge and Dr. E. Lloyd Jones of Wheeling.

At the meeting of the Ohio county society held on December 16, the speaker was Dr. William S. Middleton of the University of Wisconsin Medical School at Madison, Wis. His subject was "The Management of Decomposition."

H. W. BOND, *Secretary*.

Preston County

Dr. R. D. Harman of Kingwood was elected as president of the Preston County Medical Society for 1928 at a meeting of that society held in Kingwood on January 11. Dr. William A. Welton, former president of the Preston society, is now located in Fairmont.

Other officers chosen for the coming year at the Kingwood meeting were Dr. Fred A. Brown of the Hopemont Sanitarium, Terra Alta, vice president, and Dr. L. H. Lewis, Kingwood, secretary-treasurer. Dr. Lewis served in the same capacity in 1927.

Delegates to the state convention in Fairmont in May, 1928, will be Dr. G. F. Evans of Hopemont Sanitarium and Dr. F. D. Fortney of Newburg. Dr. Harold C. Miller of Egdon was elected as alternate.

The new board of censors of the Preston county society, appointed to serve for one, two and three years respectively, are Dr. J. G. Pettit of Hopemont Sanitarium, Dr. F. D.

Fortney of Newburg and Dr. B. S. Rankin of Kingwood. Dr. Pettit was also appointed by the chair to represent Preston county at a joint meeting of the state health council and the West Virginia State Medical Association to be held in Charleston on February 9, 1928.

The next meeting of the Preston county society is scheduled for April and a splendid program is already being planned. It is thought that the April meeting will be even better attended and more enthusiastic than the gathering of January 11. Every effort will be made during 1928 to have each physician in Preston county become a member of the component and state societies.

L. H. LEWIS, *Secretary.*

Monongalia County

At a meeting of the Monongalia County Medical Society held in Morgantown on Tuesday, December 6, Dr. H. V. King was elected to serve as president for the year of 1928. Other officers selected were Dr. T. Jud McBee, vice president; Dr. G. R. Maxwell, secretary, and Dr. W. C. Kelly, treasurer.

The delegates elected to represent the Monongalia county society at the state meeting in Fairmont next May were Dr. E. B. Tucker, Dr. R. H. Edmondson and Dr. G. R. Maxwell. Alternates were Dr. E. R. Taylor and Dr. D. M. Pfost.

G. R. MAXWELL, *Secretary.*



PERSONALS

—Dr. and Mrs. Tom A. Williams of Washington, D. C., have returned from a summer spent in Italy, and are now at Miami Beach, Florida. Dr. Williams reports a very interesting trip to many psychological clinics in Europe.

—Dr. M. N. Mastin of Goodwill, W. Va., former president of the Mercer County Medical Society, is taking post-graduate work in

Baltimore. He expects to return to West Virginia in the near future.

—Dr. John E. Cannaday of Charleston was on the program of the American College of Surgeons meeting at Roanoke, Va., on January 19.

—Dr. Decatur Montony of Harmon, who has been seriously ill with hemorrhage of the lung, is now reported to be slowly improving.

—Dr. H. F. Spillers of Wheeling, president of the Hospital Association of West Virginia, was a recent visitor in Charleston.

—Dr. William Ross Cameron has been appointed full-time health officer of Berkeley county with headquarters at Martinsburg.

—Dr. J. A. Streibich of Moundsville was recently chosen as chief surgeon of the Reynolds Memorial Hospital.

Franklin's Health Work

Benjamin Franklin's achievements as a statesman and a diplomat have been so important in the history of the United States that it is not generally known that he did much in the field of public health.

In connection with the celebration of Franklin's birthday on January 17, *Hygeia*, the health magazine of the American Medical Association, in an article by Lois Stice, describes Franklin's interest in health measures.

Franklin was instrumental in the founding of the first hospital and the first medical school in America—the Pennsylvania Hospital and the University of Pennsylvania Medical School, both in Philadelphia. He held opinions on health and hygiene that are in accord with the best medical knowledge of today. For instance he thought that fresh air was good for human beings, that colds were contagious and that water would help fever patients—all first class heresies even among the medical profession in his day.

GENERAL NEWS

Council Meeting Held

The Council of the West Virginia State Medical Association held its annual year-end meeting in Charleston on December 28, in the Association offices at 303 Professional building. The meeting was called to order at 10:00 a. m. by the chairman, Dr. C. A. Ray.

The members of the Council present were Drs. Walter E. Vest, J. E. Rader, C. G. Morgan, C. H. Hall, C. H. Maxwell, J. Howard Anderson, John Folk, R. H. Dunn and C. A. Ray. Others present were Dr. T. M. Barber, treasurer, and Mr. Joe W. Savage, executive secretary. The absentees were Drs. I. D. Cole, H. G. Steele and H. R. Johnson. Dr. Cole is ill, and Dr. Steele was absent due to the illness of Mrs. Steele.

The reading of the minutes of the last meeting was dispensed with, and approved as published in the August, 1927, *Journal*.

The first item of business was the report of the executive secretary, Mr. Joe W. Savage, which was referred to the auditing committee.

The report of Mr. John V. Ray, the Association attorney, with reference to the Nicholson case, was then read by Dr. R. H. Dunn (member of the special committee). This report, upon motion duly seconded, was accepted by the Council members, with a vote of thanks. Dr. Morgan stated that Mr. Ray has handled this situation in a wonderful manner, and he deserves a great deal of praise.

Dr. Barber then gave the treasurer's report, which was referred to committee for approval.

Next in order of business were the reports on the various districts from the Councillors.

The reduction of the security bond for the treasurer of the Association was then considered. Mr. Savage explained that in the

past the treasurer has been bonded for \$25,000, but that amount seems too large. The treasurer never handles over \$10,000, and he never has over \$7,500 at any time in the year. His bond is to be renewed right away, and if a bond for \$12,500 is chosen it will mean a saving to the Association of about \$50.

Upon motion made by Dr. Vest and duly seconded by Dr. Anderson the \$12,500 bond was accepted.

The matter of increasing the surety bond of the executive secretary was then brought before the Council. Mr. Savage stated that it occurred to him that the \$2,000 bond was too small, as the executive secretary handles all the money that the association takes in plus the *Journal* funds, and he thought this bond should be increased to \$5,000. Dr. Vest explained that this would have to be on the table for a year, and his motion that such steps as were necessary be taken to increase the bond to \$5,000, was carried.

The following resolution of Dr. Steele made at the Council meeting on December 28, 1926, was then considered:

Whereas, it appears to the Council of the West Virginia State Medical Association that the precedent long established whereby business sessions and election of officers by the House of Delegates conflicts with the scientific assemblies of this association on the last day of each annual meeting of this association, and,

Whereas, it further has appeared that such a precedent detracts from the attendance on the said last day; therefore:

BE IT RESOLVED, that the Council do recommend to the House of Delegates that the final portion of the scientific program be given the precedence over the final business session of the House of Delegates and that Section Two of Chapter Five of the By-Laws of this Association be amended by striking out the words "in the morning," thus making it read as follows:

"Section 2—The election of officers shall be the last order of business of the House of Delegates at the close of the Scientific Section on the last day of the general session."

Upon motion of Dr. Rader, the Council decided that Dr. Steele's resolution be brought before the House of Delegates at the Fairmont convention with the view of having the election of officers changed to the last thing, the last day of the meeting.

The motion made by Dr. Steele at the December, 1926, Council meeting, to change the year-end meeting from the last Tuesday in December to the second Tuesday in January, was then considered. After discussion, the Council voted to continue having the year-end meeting as it is provided in the Constitution.

Four doctors were elected to honorary membership, Drs. L. W. Talbott, Elkins; A. H. Woodford, Belington; H. D. Price, Parkersburg, and J. B. Winfield, Clarksburg.

The Council then considered the luncheon club publicity plan outlined by Mr. Savage, which the Professional Relations Committee is expecting to perfect the first of the year, whereby different doctors are to speak before the luncheon clubs of the state. Upon motion of Dr. Anderson, Dr. J. R. Shultz, chairman of this committee, was empowered to start this scheme.

In considering a resolution suggested by the Medical Society of the District of Columbia, the Council went on record to give their moral support to the District of Columbia society in their fight with the cults.

The plan of a package library service for the members of the Association in connection with the University library was then brought before the Council. Dr. Anderson moved that this plan be placed on the table, with the recommendation that each councilor think the matter over and formulate a plan to start something similar to this same plan in our own association, so that we may have the nucleus of a library for the association. This motion carried.

Resolutions of sympathy were passed and authorized to be sent to Dr. Cole, Dr. Steele and Dr. S. S. Wade of Morgantown.

Dr. Ray then informed the Council of a

proposal made by Dr. W. T. Henshaw, secretary of the State Medical Council, that a joint meeting be held of the West Virginia State Medical Association's representatives and the State Health Council on February 9, in order that the State Health Council and the West Virginia State Medical Association may get together on some changes in the Medical Practice Act at the next legislature. Dr. Ray stated that he would like to have as many doctors present as possible at that meeting.

The Auditing Committee, Drs. Hall, Anderson and Morgan, made their report on the executive secretary's report as follows:

"We, the undersigned, Auditing Committee of the Council, having the 28th day of December, gone over the Association accounts and the *West Virginia Medical Journal* accounts of the executive secretary, Joe W. Savage, find them correct, and approve same."

The committee composed of Drs. Maxwell, Hall and Folk, after examining the treasurer's report, approved it as follows:

"We, the committee appointed to audit this report, find it correct."

These reports were accepted by the Council.

The Medical Defense Committee elected for the ensuing year was composed of Dr. Charles G. Morgan, chairman; H. G. Steele and H. A. Walkup, members.

Dr. Ray stated that in retiring as chairman, he wished to thank the council for their cooperation and hoped that the same interest would be manifested through the next year.

The Council then, before adjournment, offered a vote of thanks to the retiring chairman, Dr. Ray, for his energetic, tireless and devoted service to the association.

Deaths in West Virginia

Calling on West Virginia to face her own health needs as revealed in the mirror of vital statistics, Dr. David Littlejohn of the state department of health, has reviewed the principal causes of deaths in the state for the past year. Referring to a large chart showing the deaths by causes in the

state for the past five years, he showed that diseases of the heart led all other causes of deaths for 1926, with a total of 1595 deaths, or an increase of 73 per cent over the record for 1922. Pneumonia came second on the list with 1572 deaths, and tuberculosis third with 1266 deaths.

Deaths among children under two years of age from diarrhea occupied the fourth place with 1248 deaths attributed to that cause. Nephritis and cancer took fifth and sixth place on the list, showing a marked increase during the five-year period. According to Dr. Littlejohn's figures a total of 299 West Virginia mothers lost their lives last year at the time of, or following, child birth, which, when compared with the lower birth rate, shows an increase over previous years.

Typhoid fever, measles and whooping cough were also running-mates in their claim on lives, taking respectively, 276, 273 and 272 lives. Diphtheria was responsible for 162 deaths, 68 per cent of whom were children under one year of age. The mortality from diphtheria shows a rather decided drop over the five-year period, Dr. Littlejohn pointed out, because of the efforts made to control this disease.

Physical Therapy

Recognition of physical therapy as an invaluable adjunct of scientific medicine in the treatment of diseases and injuries is one of the few actual blessings of the World war, asserts Dr. Richard Kovacs, who tells in *Hygeia* for December of the uses and abuses of treatment by physical forces.

Too often such treatment has been exploited by mercenary rascals and faddists, and as a result the regular medical profession has looked on them with doubt. No physical treatment should ever degenerate into a fad and be used for any and all conditions, Dr. Kovacs says.

Massage, gymnastics, treatment with baths, sun baths and various types of electric treatments all have their uses. The skilful physician selects or combines all known powers of healing for his patients.

Dr. A. G. Rutherford

Dr. Rutherford, superintendent of Welch Hospital No. 1, is largely responsible for the new tuberculosis sanitarium in southern West Virginia, which will be established at Beckley. Dr. Rutherford proposed that the sum of \$200,000 of available funds to the credit of the Welch hospital be appropriated for the new sanitarium, and in recogni-



tion of this generous offer the state officials decided to name the new institution "Rutherford Sanitarium."

Dr. Rutherford has long been an active worker in the West Virginia State Medical Association and in addition to his services on a number of state committees, he is secretary of the McDowell County Medical Society.

Lister Distributors

In this issue appears a two-page colored insert of Lister Bros., Inc. of New York City. For the convenience of readers, a list of their distributors in the field covered by this *Journal* is herewith given:

Jesse Keadle, grocer, Alderson; Beckley Drug Company, Beckley; Watkins Drug Company, Beckley; A. N. Gorrell and Son, Berkeley Springs; Ames and Watkins, druggists, Bluefield; Bluefield Pharmacy, Bluefield; Easly-Penn Drug Company; Goodykoonts Drug Company, Bluefield; James E. Ferrell, dealer, Boaz.

James E. Ferrell, dealer, Burnt House; W. H. Belsches Pharmacy, Charleston; Diabetic Food Company, Charleston; George B. Kenney, druggist, Charleston; Bland's Drug Store, Clarksburg; L. C. Mercer, druggist, Clarksburg; F. S. Johnston Drug Company, Elkins;

The H. and H. Drug Company, Fairmont; Harry R. Leaf, grocer, Fairmont; Ramsey's Drug Store, Fayetteville; Red Cross Pharmacy, Grafton; Jefferson Baking Company, Harpers Ferry; the Frederick Grocery, Huntington; Ivan S. Davis, Huntington;

The City Market, Martinsburg; M. A. Snodgrass, pharmacist, Martinsburg; City Pharmacy, Morgantown; Jacobs - Berry Pharmacy, Morgantown; McVickers Drug Store, Morgantown; Grimmel's Confectionery, Moundsville; W. I. Boreman and Company, druggist, Parkersburg; H. Clay Shaw, druggist, Piedmont;

Hale Pharmacy, Princeton; E. B. Spangler Company, Princeton; J. P. Kiser and Company, Sugar Grove; White Front Pharmacy, Vinton; Baer's Pharmacy, Wheeling; Peerless Drug Company, Wheeling; James E. Ferrell, dealer, Williamstown.

U. S. Mineral Waters

Residents of West Virginia, and particularly the members of the West Virginia State Medical Association, will be interested in a recent book published by Lea and Febiger called "Mineral Waters of the United States and American Spas." The book was written and compiled by William Edward

Fitch, M. D., director of the Buffalo Lithia Springs, Va.

The book devotes one section to the state of West Virginia, which brings out the merits of such places as Berkeley Springs in Morgan county, Borland Springs in Pleasants county, Capon Springs in Hampshire county, Greenbrier Springs in Summers county, Irondale Springs in Preston county, Old Sweet Springs in Monroe county, Pence Springs in Summers county, Salt Sulphur and Iodine Springs in Monroe county, Sannondale Springs in Jefferson county, Webster Springs in Webster county and White Sulphur Springs in Greenbrier county.

In his list of "Great American Spas," Dr. Fitch again turns to West Virginia to point out the advantages of Capon Springs, Pence Springs and White Sulphur Springs. Out of only seventeen listed for the entire United States, three of them are located in this state.

The book is divided into four parts, the first of which is devoted to an introduction by Dr. Fitch. Chapters are contributed by Ernest Ellsworth Smith, Ph. D., M. D.; by E. H. S. Bailey, Ph. B., Ph. D.; by John C. Hemmeter, M. D., Ph. D., Sc., LL. D., and by Guy Hinsdale, A. M., M. D. Aside from the introduction, the other sections are devoted to Crounotherapy, Balneotherapy and to Mineral Waters of the United States in general. The sections devoted to West Virginia are found in the last part of the book.

Dr. Woodford Succumbs

Dr. Elmer Lee Woodford, 60 years old, died suddenly Wednesday night, December 28, at his home in Belington. Dr. Woodford had been in his usual health, and had gone to his room to retire for the night, where he dropped dead.

Dr. Woodford had never married and he and his aged mother lived at Belington where he was a practicing physician.

Besides his mother, he is survived by one sister, Mrs. Missouri Woodford Hall of Fort Callings, Colo.

He leaves many friends and admirers in central West Virginia.

Fairmont Convention

Plans for the next annual meeting of the West Virginia State Medical Association, which will be held in Fairmont on May 22, 23 and 24, are rapidly being whipped into shape and from present indications, the sixty-first convention in the Marion county seat will be the biggest and best gathering in the history of the association. A second meeting of the committee on scientific work was held in Huntington on January 19, at which time the state doctors were selected for the program.

The various local committees of the Marion County Medical Society have been active and from recent reports, all of the sessions will be held in the Fairmont Y. M. C. A. It was first planned to hold the meetings in the new Fairmont Armory, but as there was only one auditorium available there it was thought best to look elsewhere and locate a building that could house the entire convention.

There has been some talk of a number of scientific exhibits at the Fairmont meeting, to be worked out by the county societies and the woman's auxiliary units.

Among the prominent out-of-state doctors who have accepted invitations to appear on the program of the May meeting are Dr. Howard Lilienthal of New York City, Dr. Basil B. Jones of Richmond, Dr. Curtis Burnam of Baltimore, Dr. Elliott P. Joslin of Boston, Mass., Dr. J. J. Singer of St. Louis, Mo., and Dr. Albert H. Freiberg. A number of other prominent physicians and surgeons of the United States, whose names will be announced at a later date, will also appear.

Hospital Presidency

In the December issue of the *West Virginia Medical Journal* it was stated that the term of office of Dr. H. F. Spillers, president of the Hospital Association of West Virginia, would expire on January 1, 1928. This was a typographical error and should have read that his term would expire on January 1, 1929. Dr. Spillers was elected in December, 1926, to serve for two years as head of the hospital association.

Medical Officers

The United States Civil Service Commission announces open competitive examinations for assistant medical officer, associate medical officer, medical officer and senior medical officer. Applications for these positions will be rated as received by the Civil Service Commission at Washington, D. C., until June 29, 1928. The examinations are to fill vacancies in various branches of the service throughout the United States.

There are vacancies in practically all branches of medicine and surgery, but there is especial need for medical officers qualified in tuberculosis or neuropsychiatry. Competitors will not be required to report for examination, but will be rated on their education, training and experience.

Full information may be obtained from the United States Civil Service Commission at Washington, D. C., or the secretary of the United States civil service board of examiners at the postoffice or customhouse in any city.

New Doctors Licensed

Twenty-one doctors were recently granted licenses to practice medicine in the state by the West Virginia Public Health Council. Of this number, 13 took the state board examination, all securing the 80 per cent required by law as the passing mark on the oral and written examinations. Licenses were granted eight through reciprocity with other states. West Virginia reciprocates licenses with 35 other states whose standards are on a par with the requirements of this state. All applicants are required to appear before the council.

Among those licensed were two doctors who until recently have been connected with American hospitals in China. Dr. O. Gertrude Walters of Clarksburg and Dr. Casper L. Woodbridge of Montgomery left China last spring when all foreigners were forced to flee from that country and are now located in this state.

Those licensed by examination were Drs. Ian Herbert Bond, Roanoke, W. Va.; Lawrence T. Browning, Logan; W. Va.; Raphael

Joseph Condry, Clarksburg, W. Va.; Harold Wm. Eliason, Rowelsburg, W. Va.; Ardvern Kemp Fidler, Tioga, W. Va.; Carl Edward Johnson, Morgantown, W. Va.; Wm. Luther Madera, Morgantown, W. Va.; Asa Wade Milhoan, Murraysville, W. Va.; John Alex. McCurdy, Wheeling, W. Va.; Merl August Newell, Chester, W. Va.; John Edward Stephenson, Wheeling, W. Va.; Howard Geo. Weiler, Huntington, W. Va., and Ralph Howard Zinn, Wheeling, W. Va.

Those licensed by reciprocity were: Russell Brooks Bailey, Wheeling, W. Va.; Edwin Elgin Evans, Huntington, W. Va.; Marvin Pinkney Moore, Williamson, W. Va.; Clint Walfe Stallard, Montgomery, W. Va.; Karl J. Steinmueller, Wheeling, W. Va.; Ota Gertrude Walters, Clarksburg, W. Va.; Casper Ligon Woodbridge, Montgomery, W. Va., and Robert Alex. McCosh, Richwood, W. Va.

The next meeting of the public health council will be held in Charleston in February.

Dr. Gabel Resigns

Dr. Elizabeth I. Parsons of Marietta, O., has been appointed director of the State Hygienic Laboratory to succeed Dr. Charles E. Gabel whose term of service terminated January 1, it was recently announced by Dr. W. T. Henshaw, state health commissioner.

Dr. Parsons comes to West Virginia from the School of Hygiene and Public Health of Johns Hopkins University of Baltimore where she has been associate professor of immunology and has also been engaged in research work for the past several years. She is a graduate of Vassar College and received her doctor of science from Johns Hopkins. She assumed her duties January 2.

Damage Suit Dropped

Motion for a new trial in the damage suit of Charles Jackson Drain of Paden City against Dr. William T. Goche of Clarksburg has been withdrawn in circuit court. Drain sought \$25,000 damages from the doctor, charging malpractice. He asserted that

following an automobile accident in 1924, he was taken to Dr. Goche for treatment, and through negligence one of his legs is now shorter than the other.

At a previous trial Dr. Goche was exonerated of blame. He asserted Drain left his hospital without his consent and removed a plaster cast from the member prematurely.

Board of Otolaryngology

An examination was held in Detroit on September 12, during the session of the American Academy of Ophthalmology and Otolaryngology. One hundred and two applicants appeared for examination, with .107 per cent failures.

An examination was held in Memphis on November 14, preceding the session of the Southern Medical Association, with .127 per cent failures.

In the course of the past year, three hundred and sixty-nine applicants have been examined.

In 1928, examinations will be held in Minneapolis, on June 11, at the session of the American Medical Association, and in St. Louis, on October 15, during the meeting of the American Academy of Ophthalmology and Otolaryngology.

Prospective applicants for certificates should address the secretary, Dr. W. P. Wherry, 1500 Medical Arts building, Omaha, for proper application blanks.

Sphygmomanometers

Standard tests of sphygmomanometers, used by physicians to measure human blood pressures, are described in a paper (Technical Paper No. 352) just issued by the Bureau of Standards of the Department of Commerce. The tests described cover a period of about ten years, the bureau notes in a statement issued coincidentally with the paper. The full text follows:

Sphygmomanometers or blood pressure gauges are used by physicians to measure the pressure of the blood in the arteries of the human body. This pressure at any point in the arteries is constantly varying

in a rhythmic cycle caused by the beat of the heart. In a normal adult person about 25 years old the maximum and minimum values of the blood pressure (systolic and diastolic pressures) are sufficient to support columns of mercury approximately 120 and 80 millimeters high, respectively. Deviations from the normal values for an individual frequently indicate pathological conditions.

The Bureau of Standards of the Department of Commerce has tested blood pressure gauges since 1917 and has thus accumulated useful information as to their performance characteristics. The results of the bureau's experience are given in Technologic Paper No. 352 which has just been released, and which can be obtained from the superintendent of documents, Government Printing Office, Washington, D. C., at twenty cents per copy.

The paper describes the standard tests and performance tolerances which have been adopted by the Bureau of Standards for use in testing sphygmomanometers. The tolerance (that is the permissible error) specified is plus or minus 3 millimeters, or from one to one and one-half percent of the maximum range of the sphygmomanometers, since the range of these instruments is usually within the limits 0 to 200 and 0 to 300 millimeters of mercury. This tolerance was considered fair by the manufacturers and is sufficiently rigid for general medical use. Special provision is made for cases in which particularly accurate instruments are required.

In addition the paper discusses the general aspects and the technique of blood pressure measurement, and gives performance data for about 135 sphygmomanometers, part of the mercurial type and part of the aneroid type.—*U. S. Daily.*

Lest We Forget

Dr. Joseph Lyon Miller of Thomas, W. Va., has recently had published in the *Virginia Medical Monthly* an article entitled, "Lest We Forget," in which he forcibly brings out that the founders and discoverers of modern medicine and surgery should be remembered by the profession just as the founders of this

country are remembered by the nation at large. Dr. Miller's paper contains a graceful dignity and a part of his splendid argument is herewith reproduced:

By our memorial days we keep green the memory of the great personages and events in our religious and political life. With Christmas and Easter we remember the birth and death of Christ. The Fourth of July reminds us of the men who wrote and proclaimed one of the world's greatest documents of civil liberty. Other state and national holidays annually recall many important men and deeds of achievement.

Why then should not we, as members of one of the most honorable and ancient of the professions, from time to time devote a meeting of our societies, or at least more frequently present a paper recalling the names and work of those great physicians of the past, whose epoch-making contributions mark the progress of medicine from superstitious empiricism to scientific rationalism; and place in the written annals of our state the records of the work and influence of those worthy physicians whom we have succeeded—men whose careful experiments, or keen observation and interpretation of facts ages old, revolutionized the thought and practice of our art? Why should we leave all this to a few medical historians and antiquarians any more than leave to the President and Senate the keeping green the memory of The Declaration of Independence?

Medical Practice Act

The constitutionality of the Colorado Medical Practice Act is attacked in a case which was argued before the Supreme Court of the United States on December 6.

The case is that of Spears, Plaintiff in Error, v. State Board of Medical Examiners of Colorado, No. 122, in error to the Supreme Court of the State of Colorado.

Complaint was filed before the State Board of Medical Examiners of Colorado, charging plaintiff in error, Leo L. Spears, with immoral, unprofessional, and dishonorable conduct in having caused the publication of a certain advertisement attacking

the Veterans' Bureau and the Fitzsimmons Hospital and the complaint prayed that Spears' license to practice as a chiropractor be revoked. The complaint alleged that the purpose of the publication was to unjustly discredit the Veterans' Bureau and the Fitzsimmons Hospital and for the purpose of increasing Spears' practice as a chiropractor.

The board overruled Spears' objections to the complaint and adopted a resolution revoking his license. The Supreme Court of Colorado sustained the action of the board. The plaintiff in error attacks the constitutionality of the act under which the board purported to act.

For the plaintiff in error it was contended that the publication by Spears of the article complained of was the exercise of a privilege and immunity belonging to him as a citizen of the United States, and the state of Colorado cannot abridge his right to exercise such privilege and immunity or revoke his license for having done so.

It was argued that the medical act denied Spears due process and equal protection of the law.

The case for the plaintiff in error was argued by Albert L. Vogl (Carle Whitehead on the brief with him.)

The court declined to hear further argument. The chief justice stated that the court was not of the opinion that the requisite jurisdictional factors had been established.

A brief on behalf of the defendant in error has been filed by William L. Boatright and Charles H. Haines.—*U. S. Daily*.

Radium Banks

One of the recognized needs in the treatment of cancer is a supply of a suitable quantity of radium. Some of the many centers against cancer in France are already provided with it. Each center in Belgium is required by law to possess at least one gram, a requirement which is the more feasible of enforcement in that country by reason of the fact that the entire output of radium in the world is now in the hands of a Belgian company. Some hospitals in the United States are well provided with radium, but some of

the largest and best have none. In not a few it is necessary to depend upon the radium owned by surgeons connected with the institution. In Sydney, Australia, it has been proposed to make a quantity of radium available to all physicians who are qualified to use it. The idea is to have a radium bank possessing five grams of radium which will be loaned to physicians throughout Australia.—*Campaign Notes of the American Society for the Control of Cancer*, September, 1927.

Dr. Gregory Ackerman

Dr. Gregory Ackerman of Wheeling, one of the oldest men in the profession in this state, died on January 16 of cancer of the prostate. He was the second prominent Wheeling physician and surgeon to die in the last few weeks. Dr. Ackerman was 75 years of age and was an honorary member of the West Virginia State Medical Association.

Of a gruff, direct manner, Dr. Ackerman was not always understood by those who casually met him and many failed to carry away from the first meeting the towering qualities of the man. It cannot be said that Dr. Ackerman ever ascended to the high place he attained by any ingratiating methods. He was among the first surgeons to do abdominal work in the country and again one of the first to perform a hysterectomy.

Throughout his life, Dr. Ackerman enjoyed a high practice which was made up from everywhere. He took no pains to coddle it, depending entirely upon the results attained. He came before the age of specialists and it may be said that he did everything from "a mastoid" to a forceps delivery and from a common cold to a brain tumor. He was after the manner of Thomas A. Edison and toiled for many hours rarely taking the time for anything else save his religious duties.

He was a great Catholic and attended mass every morning when possible. It is impossible to estimate the enormous results of his long life and we would wager his career could scarcely be duplicated. Had Dr. Ackerman taken the trouble to jolly the world a little, his name would have become almost interna-

tional. However, he lived his life as he saw it and perhaps if he had done like many others he would not have attained his commanding position.

Dr. Ackerman was a great believer in his own medical society, attending regularly and giving papers whenever called upon. He was a reliable and ever-ready man to call upon for discussion and often asked some celebrated personage questions that tried their mettle. His type has passed and Wheeling will probably never know another. Mrs. Ackerman, his wife, died but a few weeks ago. Dr. Ackerman leaves a family of several children, all grown. Unfortunately for Wheeling, Dr. Ackerman had no time for civic affairs and outside of an indulgence in music, his profession was ever his all in all. —H.M.H.

Dr. N. A. Haning

Dr. N. A. Haning, one of the best known doctors of Wheeling, died on December 7, 1928. Feeling badly several days before he succumbed, he did what so many busy doctors do, allowed his pain to become insistent and when operated upon, the appendix was gangrenous, post cecal and had to be removed in several sections with drainage. Even at that he put up a brave, patient, manly and courageous fight, but toxemia developed and the end came peaceably.

Dr. Haning came to Wheeling in 1898 and two years later was associated with Dr. H. M. Hall, an association that lasted for seven years. He then took up the medical direction of several mining ventures and became associated with Dr. George Abersold. This connection, in a greater or lesser degree, remained until his death.

He came from a family that lived near Athens, O., and leaves a wife and several grown children. Dr. Haning was an admirable example of the "gentleman doctor." It is doubtful if he ever read the code of ethics but it is very certain little could be said that he ever violated it. He obeyed it by instinct. It was related after his death that no one ever knew of his being involved over the "stealing of a case" or in any other matter calling for censure as to his conduct. This

is in no sense a flattering encomium; it is merely a fact.

The only criticism of his career was that he did not attend more meetings of his society because in many respects he was the very kind of man the profession needed.

Dr. Haning, together with his wife who was Miss Josephine Waterhouse, was very prominent in Wheeling's social set. He was a member of the Fort Henry Club and the Wheeling Country Club.

The profession feels his loss keenly and in looking over those left behind it will be difficult to fill the niche he has left. He was buried in Wheeling at a funeral which was very largely attended and at which the floral offerings were particularly evident in profusion. At the time of his death, Dr. Haning was 56 years of age. —H.M.H.

Tri-State Meeting

The seventh meeting of the Central Tri-State Medical Society was held with an attendance of approximately 400 members at the Hotel Pritchard, Huntington, on the afternoon and evening of January 19. Dr. J. M. Salmon of Ashland, Ky., newly elected president of the society, presided at the meetings.

The afternoon session was featured with papers by Dr. Lewis L. McArthur of Chicago and by Dr. Louis Hamman of Baltimore, Md. Dr. McArthur, who is connected with the Rush Medical College, read papers on "The Conservative Surgical Treatment of Breast Tumors," and on "Cancer of the Tongue." Dr. Hamman spoke on "Prognosis of Hypertension."

Following a five course banquet in one of the private dining rooms of the hotel, Dr. Samuel Iglauer of Cincinnati, O., read a splendid paper on "The Use of Lipiodol in the Diagnosis of Chest Conditions." Dr. Alfred Friedlander of Cincinnati, who was originally scheduled to appear on the program, was unable to be present.

Just before the evening session, a short business session was held at which time it was decided to hold the next meeting of the society in Huntington.

WOMAN'S AUXILIARY

Morgantown Luncheon

In courtesy to Miss Ada Coddington of the West Virginia Board of Health, a luncheon was given at the Hotel Morgan, Morgantown, by the members of the Women's Auxiliary of the Monongalia County Medical Society at one of their fall meetings. Immediately following the luncheon the members attended the lecture given by Miss Coddington in the First Methodist church.

Those present were Miss Coddington, the guest of honor; Mrs. L. W. Cobun, Mrs. R. H. Edmondson, Mrs. P. D. Arbogast, Mrs. Page A. Gibson, Mrs. W. H. Howell, Mrs. Luther S. Brock, Mrs. J. R. Hughart, Mrs. Brinley John, Mrs. H. V. King, Mrs. Benjamin M. Stout, Mrs. J. Preston Lilly, Mrs. Harvey C. Powell, Mrs. Almonta Borrer, Mrs. Everett R. Taylor, Mrs. Eldon B. Tucker and Mrs. William B. Scherr.

Kanawha Meeting Held

A meeting of the Kanawha County Auxiliary was held the first Tuesday evening in December at the home of Mrs. B. S. Preston with about thirty members present. The following officers were elected to serve for the coming year:

President, Mrs. M. I. Mendeloff; first vice president, Mrs. M. M. Peterson; second vice president, Mrs. J. R. Shultz; secretary, Mrs. V. T. Churchman, Jr.; treasurer, Mrs. D. N. Barber.

The Kanawha Auxiliary decided to give a reception the first of the year to the old and new officers of the Kanawha Medical Society and of the Woman's Auxiliary. Mrs. R. K. Buford was given charge of the affairs and the event will probably be held some time this month.

It was voted by the Auxiliary to hold a bridge party, the date to be fixed later. The Auxiliary plans to place *Hygeia* in several of the schools in the county and the proceeds of the affair will be used for that purpose.

Following the business session of the Kanawha Auxiliary meeting, Dr. G. C. Schoolfield gave an interesting talk on "Professional Ethics."

Mrs. McMillan Recovering

Mrs. W. A. McMillan, who was recently injured in an automobile accident in Charleston, is making a good recovery.

Mrs. Champe Returns

Mrs. Ira Champe has returned from a trip to Woodstock, Va., and Baltimore, Md.

Mrs. Fitzhugh Appointed

Mrs. W. D. Fitzhugh of McComas has been appointed the new reporter from Mercer County. Everyone who read the last number of the *Journal* realizes that Mercer county has a splendid organization and an unusually capable reporter.

Mrs. Steele Better

Mrs. H. G. Steele of Bluefield is reported to be recovering from a recent illness.

Personals Are Requested

All members of the State Auxiliary are requested and urged to send in personals or any items of interest for publication in the Auxiliary page of the *West Virginia Medical Journal*. All such contributions should be sent either direct to the *Journal* or to Mrs. T. Maxfield Barber, Crescent Road, Charleston.

Good Hygeia Campaign

Mrs. Brindley John and Mrs. J. P. Lilly of Morgantown, who have recently been appointed on the Monongalia county *Hygeia* committee, have just reported 28 new subscriptions. Of this number, 14 were put in the Morgantown schools by the school board. Mrs. Lilly is state *Hygeia* chairman.

The West Virginia Medical Journal

Directed and Edited by the Committee on Publication

[The Committee on Publication is not responsible for the authenticity of opinion or statements made by authors or in communications submitted to this Journal for publication. The author or communicant shall be held entirely responsible]

JAMES R. BLOSS, *Editor-in-Chief* - - - - - Huntington

ASSOCIATE EDITORS:

WALTER E. VEST
Huntington

HARRY M. HALL
Wheeling

J. HOWARD ANDERSON
Martown

C. A. RAY
Charleston

MR. JOE W. SAVAGE, *Secretary-Business Manager*, Charleston

Entered as Second Class Matter, January 1, 1926, at the Postoffice at Charleston, West Virginia

Volume XXIV

MARCH : 1928

Number 3

CONSERVATIVE SURGICAL TREATMENT OF BREAST TUMORS *

*By L. L. MCARTHUR, M. D.
Chicago, Ill.*

IS THERE at this time such a thing?

This communication with the carefully emphasized premise that it is addressed to the man of long experience in the practice of general surgery; to him of mature deliberation and judgment in the given case; it is not intended for the school room nor the recent graduate.

In the medical class room, the efficient teacher, to carry conviction, must, of necessity, be quite dogmatic, since it has thus been found that the best general average of good results will have been struck by the average practitioner. To insist, however, that surgeons of long years of ripe experience be rigidly bound by the surgical laws appropriate for the novice is often both unfair to him and to his patient. The very helpful propaganda being waged for the education of the general public, through popular lectures, magazine articles, and public press,

has strengthened the conviction of the young ambitious surgeon that he must remove (and at once) any and every lump in the female breast—this without due regard to its innocence or malignancy! So that today but few women escape surgery once they have presented themselves with a “lump” in the breast. The argument that even innocent growth may later become malignant, may quiet the conscience of the operator who has excised a simple fibroma or cyst, but leaves behind in the patient much uneasiness of mind and an abiding fear of a recurrence of that dread disease, cancer.

About 40 per cent of all breast tumors are malignant; about 60 per cent are innocent. Should not the experienced surgeon be able out of these 60 per cent to positively recognize say half of them as simple benign growths, to so inform the patient, and thus bring comfort and ease of mind to 30 per cent of all cases? Must 100 per cent submit to operation to make the surgeon safe from

* Read before the Tri-State Medical Society at Huntington, on January 19, 1928.

future potential criticism? Of the remaining 30 per cent of the innocent cases, there may be reasonable grounds for not being positive as to their exact nature, to therefore regard them as border line cases, and as such to suggest their complete removal for microscopical study. By such removal, however, I do not wish to be misunderstood. The entire node is to be removed intact through perfectly healthy tissue, and the wound at once closed secundum artem. This is quite another matter to the former practice of taking a fragment of the growth for laboratory study, which, permitted in the past, is now to be condemned. With the pathologist present at the operation, immediate incision of the removed growth is to be made, both the surgeon and the pathologist seeing the fresh-cut surfaces. If neither frankly innocent nor malignant, an immediate frozen section is made, and the findings reported by the time the skin incision has been sutured. In the majority of such instances, a positive statement can be made at this time of its exact nature. In the few frozen sections of doubtful diagnosis, the pathologist may, without detriment to the patient, still further study the specimen after appropriate hardening, because the entire growth had been removed, leaving no freshly cut tumor surface in the wound. Moreover, if this borderline case at the operation has (by the examination by the pathologist and the frozen section) been proven innocent, that's the end of it. If he be unwilling at the time of operation to put himself on record, the delay of a few days will not jeopardize the chances of the patient (because of its wide incision), and will give the pathologist ample opportunity for both study and counsel. Should the final microscope diagnosis report a malignant character, then the appropriate radical amputation can be made.

Let me reiterate.

Any node of doubtful character should be removed by wide excision through healthy tissues, and the wound closed during microscopical study to determine its exact nature. If innocent, nothing more is necessary; if doubtful, the delay of two to four days does not (as in the case of excising a fragment of a tumor) militate against the

patient's welfare. On the other hand, should the final diagnosis by the pathologist be malignancy, what then is to be done? This brings us at once back to the dogmatic instructions so essential when teaching students, which in this instance would run much as follows: "The entire mamma must be removed, with the skin immediately overlying the tumor; a radical removal of the glands that exercise a police vigilance over the area affected, together with a portion of the pectoralis major." I am frank to say that this is the general practice, and in most instances has been mine.

Dr. Butlin, former president of the British Surgical Association, had one of the most extensive experiences ever had by any man in the treatment of cancer of the tongue. He personally related to me the fact that he had done two series of tongue excisions: one of 98 cases in which at one sitting both the cancer of the tongue and the associated carcinomatous lymph glands were removed; the other of 102 cases, in which a two-stage operation was done—the cancer of the tongue first, and ten days or two weeks later the glands of the neck, with the mortality lowered, the systemic infections less frequent, and the longevity of patient improved, on the basis that, lamed as they were, they were better than no barrier at all to the infective elements. To this practice the very latest contributors to carcinoma surgery subscribe, *e. g.*, notably Polya (Simmon's report). Why then may one not await the palpable axillary lymphatic, which may never come, as in the cases just cited, before resorting to the radical procedure?

My friend, the late lamented Dr. J. B. Murphy, on being accused of being a genius, denied the impeachment, saying that the man of experience who, basing his work on sound surgical principles, departs from precedent and tradition is a pioneer and a blazer of trails. If then, the cancer propaganda has more and more early brought to the surgeon incipient growths of the breast and among some of them may be found a very early semi-doubtful borderline case, which, removed radically as above described, is found to be an incipient carcinoma, must the

surgeon follow the absolute rule laid down for students and do a radical removal of the entire breast and axillary glands, ignoring the experiences of a lifetime which have time and again taught him that the very early and free excision of a commencing carcinoma has resulted in permanent cure. If this must be, then surgical judgment is strangled, the surgeon disappears, and the operator remains to practice certain set formulas. In all my years of surgery, there have been but seven occasions in which I have felt justified after removing by free excision just such an early small doubtful breast growth, to follow it up by no radical amputation and to have the patients remain well from three to twelve years, protected from the dangers and spared the mutilation of the radical procedure so dogmatically insisted upon at present. Let it be distinctly understood that the writer by no means advocates a departure from the recognized practice in general, but does in particular make a plea for the recognition of the fact that in certain incipient cases, the early complete removal of the primary focus has and will effect a cure without the mutilation made necessary by orthodox followers of an inflexible routine.

The statistics of mouth cancer made by the Committee of the College of Surgeons and just printed, show that the invasion of the neighboring lymph nodes does not occur much before the third month, and that in those cases the cures are 35 per cent—whereas after invasion only 5 per cent are cured. If then during the first six or eight weeks a cancer of the breast is radically excised as just described, are we not justified in waiting before doing the mutilating operation. There must be a period prior to the lymph gland invasion, a time when it is still primary and local. If this be true, then the surgeon is justified in such rare instances in doing as above described, the simple free excision.

I make a plea, too, that the fellow surgeon who, daring to depart from recognized practice in a few carefully chosen instances be not condemned too quickly by his fellows, and in the event of the outspoken expression of the family physician of malpractice,

to at least defend him to the extent of admitting that no rule of practice but has its occasional exception.

Some fifteen years ago, I made a radical removal of the right breast and axillary glands of a patient from Texas. After remaining free from recurrence eight years, she returned with a very small node in the sternal margin of the remaining left breast, for which the local surgeon urged the radical removal of the remaining breast. Returning to me, with the history of its appearance in the breast as of not more than thirty days, I proposed its free excision under local anesthesia, immediate closure, and the same prophylactic X-ray treatment that had given such good results following the former operation. This was agreed to, the patient returned home to follow out the course planned of X-ray and watchful waiting. Her first letter to me after her return home was filled with the denunciations by her family physician of a surgeon who knew no better than do so dangerous a thing—he should be sued for malpractice, etc., etc. Nevertheless, together with a group of similar cases I had the pleasure of demonstrating, the patient, three years later, free from recurrence! Are there among you any who would defend on the witness stand against a charge of malpractice such a, (shall I say courageous or foolhardy) departure from accepted precedent?

In the spring of this year, there came to me from Memphis a young girl of 16, minus a right breast, recently radically amputated for a "lump," supposed at first inflammatory, but on incision found to be "solid." After the operation, the microscope revealed no malignancy. In great mental trepidation, she presented herself two months later with what she insisted was the identical condition in the remaining breast. Examination revealed a firm distinctly lobulated mammary gland, almost fibroid in feel, but with no one part more than another showing any pathological change, each individual lobe becoming tender and somewhat engorged just prior to the menstrual epoch. I counseled against operation in the absence of any suspicion of growth, and for nearly a year there has been no reason to change

such opinion. Might she not have been spared such mutilation had a proper study of the case been made?

Illustrative of the attitude of mind of the teaching surgeons, let me cite but one more instance. Eighteen years ago, there was brought to my office in tears the wife of a Chicago physician, who had just come from the offices of two of Chicago's world-wide teachers of surgery. Each of these in turn having carefully examined the breasts said, "Both these breasts must be removed and at once; go into the hospital and I'll remove them tomorrow." "Are they cancerous?" "I cannot say, but they are apt to become so at any time if they have not already done so." On examination and careful questioning, this was learned: That patient discovered casually, while bathing, a node in her breast. Her husband, a physician, on having his attention called to it, noted the one lump in question and several smaller ones in both breasts. There never had been pain and it was not known how long they had existed; a multipara, with rest of history negative. Frankly, a polycystic condition of both breasts, known to the surgical world as Schimmelbusch breasts; innumerable small firm nodes from pea to bean or walnut size. I felt justified after most careful consideration of the conditions present, and the preceding opinions of men I respected most highly, to give this advice. "The condition is an accidental discovery, with no alarming symptoms; so far as we know, no malignant change has occurred in any of these multitudes of cysts. You are not driven to immediate operation by the urgencies of the conditions; why not watch it thirty, sixty or ninety days? We know that warts or moles may become malignant, but we don't fly to their instant removal; why not do the same here?" This was decided upon. There never was any change for the worse. The patient was not again seen professionally for fifteen years, when she returned with her husband, the doctor, because of a suspected acute appendicitis. After ruling out that probability, I recalled to her mind the fact that years before she had been worried about her breasts and had consulted me. In the meantime, the menopause had long since

occurred. What was ever done for them? Nothing; she had forgotten that I had seen or counseled her. Requesting permission to re-examine them, two flat atrophic breasts were found, without a demonstrable remaining node anywhere to be felt in either of them. Did I err in antagonizing what is the recognized teaching for the class room? Must every case be operated in order to protect the surgeon against potential future criticism? Or may a man in some specific instances use his best judgment even when at variance with the accepted teachings of the world's acknowledged masters?

Finally, let no one take shelter from criticism who, having heard or read this paper elects to do a minor operation, the radical excision being distinctly indicated, simply because he feels or fears himself incompetent or unprepared to meet any and every complication the radical removal of the breast and axillary glands may develop.

Cancer of the Tongue

WERE an excuse or an apology necessary for the presentation of this communication, it can be found in the current publication of the Statistical Report made by C. C. Simmons at the instigation of the College of Surgeons.

After all the active cancer propaganda made through every known agency (illustrated lectures by physicians, by cancer foundations, articles in the daily press, in magazines, and so forth) during the past ten years, in order to teach the laity the importance of early recognition, is it not appalling that out of 318 cases of primary cancer of the mouth, 24 per cent received improper advice at the first consultation; that of this 24 per cent or 76 men, 67 were physicians and the remaining nine dentists! Not a solitary layman among them! Of what value then propaganda, if of all men best equipped by training and experience, doctors and dentists constitute those most indifferent in early diagnosis and most negligent in early treatment. Can it be that familiarity with the disease has bred contempt, or has the prevalent discouraging opinion as to the invariably fatal termination led them to such foolish inaction? Have

the varied efforts of the propagandist so directly aimed at the average person escaped the eye and ear of the medical man and the dentist?

While in no position in the body is advanced cancer less amenable to treatment, in its early stages it is as easily eradicated in the tongue as elsewhere.

What then is the early stage?

Our committee in its report by Dr. Channing found first that 40 per cent had their primary consultation within the first thirty days; and second that 35 per cent of cures resulted when operation was made prior to lymph node involvement—only 5 per cent after such involvement. From this, it can be indirectly deduced that lymph node involvement does not usually occur during the first thirty days; that curability increases in direct ratio with earliness in recognition and treatment. Even then, a patient presenting himself with a "sore" anywhere on the tongue, it is the imperative duty of the physician to make a positive diagnosis with the least possible delay.

The only lesions of pathological import offering possible doubt in diagnosis are: Syphilis, cancer, and tuberculosis. In all of these, the microscope can solve the problem at once.

While in other situations, as in the breast, there may have been justification for objection to the removal of a fragment of a growth for diagnostic purposes, because of opening up lymph spaces to possible invasion by cancer elements, similar objection is not here valid, because the cut surfaces are left open and the freed elements, if any, escape in to the mouth cavity. Within 24 hours, one knows (not believes) the true situation.

Occasionally, the entire lesion is so small that even for diagnostic purposes it can be as radically excised as in a primary operation; a stitch or two inserted to close the incision. The serial section of the lesion thus removed will then both demonstrate its nature and at the same time prove whether the incision has gone widely through normal tissue at every point. If cancerous, it is out; if tubercular, the extremely painful lesion is gone; if neither, then syphilis is

the probability. Extreme emphasis here should be made that a positive Wassermann in no wise excludes cancer in tongue sores, since that test responds to several other diseases, notably, measles, leukoplakia, and many mouth cancers. Therefore this offers no excuse for trying antisyphilitic treatment before absolutely excluding the cancer possibility. A mistake still unfortunately too frequently and disastrously made.

To the fact that several years ago I presented to a small group of intimate medical friends a series of tongue cancer cases, of three years or longer postoperative, is due this paper. These patients were so prominent socially, politically, or financially that I could not ask them to go before the Surgical Society for very obvious reasons; but they kindly consented to go to one of the private rooms in a local club to meet a group of our most eminent medical men. Mention of this is made in no spirit of pride or boasting, but to demonstrate that though having violated the dogmatic teachings of the then leaders of the surgical world, I had done so in cases of the utmost importance to my future surgical career, and not on a group of charity ward cases.

At that time, I made a plea for freedom of surgical judgment in the individual case to not be compelled to follow the routine teaching in every case of a block dissection of the lymph nodes (whether palpable or not) exercising a police vigilance over the affected area. For in several of these I had refrained doing so because either convinced they were not involved, or if involved that the teaching of Mr. Butlin, based on his enormous personal experiences proved to my mind the better practice. It had been my good fortune in 1904 to spend an evening at his side, at which time I learned from him that his results were in every way better when he left the lymph nodes to be removed at a second operation two weeks later, his conclusions being based on two series of cases—one series of 98 cases in which simultaneous removal of the lymph nodes had been made, and one series of 102 cases in which the lymph nodes were left until the tongue operation was well advanced toward healing. His experience

proved that maimed as these glands were, they were better than no barrier at all. Reasoning that if such had been Butlin's experience, I certainly would be justified in waiting until the nodes should at least be palpable. This in certain cases never occurred, and so these patients never required the block dissection. In one instance in which much irritation of the local lesion had been caused by repeated cauterizations with nitric acid, carbondioxide snow, and so forth, a frankly enlarged and tender lymph gland was not excised at the primary operation, much to the annoyance of the family physician who had demonstrated the carcinoma of tongue by the microscope. Promptly following the tongue resection, this gland began to reduce, and in a few weeks had completely disappeared; he too required no block dissection.

It is with intense gratification I note in the current literature perused in the preparation of this communication, that Polya makes this semi-apologetic statement: "Only in the presence of a small and well localized carcinoma that can be removed through the mouth and in which are no clinical signs of gland involvement would I refrain from removing the regional lymph nodes."

There is then a period when it may be safe. May we not without criticism occa-

sionally seize that opportunity, spare our patient the immediate mutilation, and following Butlin remove them later if they ever appear? Of course, only the most hearty cooperation of the intelligent patient over a long period of time will make this safe to do. The situation in every particular has been made clear to these patients, and the possibility of early secondary removal of the regional lymph nodes becoming imperative; that while they might dare to temporize when no enlargement could be detected, there must be no delay once they were shown to be invaded.

Agreeing with Dr. Bloodgood that there can be but little improvement expected in the present day surgical technic, where then lies the hope for the future? Most certainly in earlier and earlier diagnosis, until, having reached the period in which the growth is still localized, while it is so, radically removing it, we can secure the desired permanent cure.

Be it understood that I am making no plea for leaving permanently any palpable gland, nor for the avoidance of the block dissection when frankly invaded, but rather for that freedom of judgment in the individual case which if the surgeon forfeit to routine practice he becomes a mere operator, a practitioner of certain set formulas.

TECHNIQUE OF UTERINE SUSPENSION *

By C. F. FISHER, M. D.
Richwood, W. Va.

NEARLY EVERY SURGEON doing some gynecology has one type of suspension operation to which he closely adheres. I know that I have, and have reasons for so doing, and I feel certain I can explain them. I shall try to show where my choice of suspension operation is better than others, and I have tried it enough to be certain, and the particular operation, which really forms the basis of my thesis, I have done 154 times,

with no variation in technique, and excellent results.

In a paper of this type time and space do not permit a lengthy discussion. Suspension of the uterus is usually done for the relief of retrodisplacement of the uterus, and often to assist in correcting a moderate decensus of the uterus.

I do not intend to discuss the etiology of retrodisplacement of the uterus, and moderate decensus which we all consider a second stage of retroversion, both usually present as a result of relaxation, and physiologic in-

* Read before the Surgical Section at the Sixtieth Annual Meeting, West Virginia State Medical Association, White Sulphur Springs, on June 22, 1927.

sufficiency of tissue. The symptoms likewise shall be omitted.

Not all women with retrodisplacement have symptoms, and a good example of this is to remember that uncomplicated retroversion occurs in 20 per cent of unmarried women, and they nearly all give as normal history of menstruation, etc., as those 80 per cent with antelexion.

I am fully convinced that "an uncomplicated, movable, retroposed uterus produces little or no symptoms," and should not be suspended just because its position is at fault, and I most certainly feel that some women are definitely harmed instead of helped by operation in these instances. If the misplacement is associated with a tendency to repeated abortion or sterility, or definitely producing symptoms, and when postural and calisthenic treatments fail, and by examination the surgeon feels that structural changes are present, and anatomical impairment is imminent, operation is necessary. The symptoms of retrodisplacement are usually due to the associated lesions, such as perineal relaxation, infection and laceration of the cervix, adherent retroposed uterus as a result of an old pelvic peritonitis, and varicosities of the broad ligaments.

To achieve good results and satisfied patients, great care should be taken in the selection of cases for operation, and careful search for associated lesions should be made before any operative procedure is planned; and when this procedure is undertaken, if the perineum requires attention, suitable perineorrhaphy should be done; an infected cervix cauterized or repaired; curettment is almost a routine in these cases; freeing of the adherent retrodisplacement, particular attention paid to ostial and ovarian adhesions, remedial measures for abnormal adnexa conditions, and the varicosities will disappear when proper suspension of the uterus is done.

Suspension alone gives an anatomical cure, but surgeon and patient alike require both an anatomical and symptomatic cure.

Proper uterine suspension, with treatment of the associated lesions, with relief of the annoying and distressing chain of symptoms,

is one of the most satisfactory operations of gynecology.

Since December 14, 1881, when Alexander performed his first operation for retrodisplacement, well over a hundred different operations have been devised. Each one might be well suited to certain carefully selected cases, but many operations for one condition is like many remedies for a disease, only a few are of any value.

My purpose is to discuss briefly the most popular operations of uterine suspension, their merits, objections and contra-indications, and finally discuss in detail as much as my time permits my conception of the most ideal operation, with one or two variations in technique, and to use some slides to illustrate the various points made. Ventral suspension and fixation are omitted for they are fast, and justly so, growing obsolete. The Wylie, Dudley and Mann operations will not be discussed, or any other ligament folding operations used in cases associated with diseased appendages.

No. 1. This first slide represents the Alexander Adams Goldspohn operation. The incision for this operation is about three inches in length and made parallel to Poupart's ligament as in the operation for inguinal hernia. The ligament is sought at the external ring, dissected free and held by a blunt hook. The ligament is withdrawn until the cone-like reflection of the peritoneum is seen. This cone is opened, and the same procedure is repeated on the other side, up to this point. With the index fingers in the abdomen the exact amount of traction can be determined, and when this is done the ligaments are sewed to the under side of the fascial flap, and the superfluous ligament cut off. To guard against the occurrence of hernia the edge of the conjoined tendon is secured to Poupart's ligament, the fascial flaps overlapped and the wound closed. This operation is popular abroad.

In this operation the procedure is almost entirely peritoneal, and the strong portion of the ligament is used. There is little or no exploration possible, and operations on the adnexa are impossible. The traction on the ligaments is lateral, and there is always the

possibility of hernia. There are no complications with pregnancy.

No. 2. This slide shows the Baldy-Webster operation. This operation is done through the low mid line incision in the Trendelenburg position. The broad ligaments on either side are pierced close to the uterus and just beneath the ovarian ligament. The round ligament is picked up at about one-third of its length from the uterine end, and drawn back through the perforation in the broad ligament. This same procedure is repeated on the other side and the ligaments sewed together behind the uterus and also lightly attached to the body of the uterus. The point of attachment to the uterus is very important.

This operation is good in cases of simple retroversion, and is devoid of labor and intestinal complications, and of all the operations it secures the most ideal position of the uterus. It has very poor supportive power, and there is the "sling" tendency to relapse. The strain of support is thrown entirely on the weak portion of the ligament.

No. 3. This slide represents the Olshausen operation. This operation is also done through the mid-line incision in the Trendelenburg position. The round ligaments are grasped at a point about an inch or inch and a half from the uterus. A suture is passed beneath the ligament at this point (Graves advises the use of No. 7 braided silk) and the suture then carried through the entire abdominal wall including the peritoneum, muscle and fascia, then returns to the abdominal cavity taking a bite in the wall of about one-half inch. The suture is tied very tightly in the abdominal cavity. The procedure is carried out on the other side. The success of this operation depends on the tying of the sutures.

This operation gives good supportive power, and the technique is very simple. However it leaves three pockets for the possibility of intestinal obstruction. Some object to the large foreign body suture used. I have always used medium Pagenstecher linen, doubled.

No. 4. This slide shows the Gilliam operation, done through the low mid-line incision. The skin and subcutaneous struc-

tures are dissected free of the surface of the fascia. A perforating clamp is carried directly downward through fascia muscle and peritoneum into the abdominal cavity. The round ligament is grasped and drawn directly out and attached to the outer side of the fascia. The procedure is completed on the other side.

This operation affords a direct forward ligament tension, and therefore has good supportive power. The openings in the fascia tend to weaken this structure. There is as is mentioned in the above operation the tendency for intestinal obstruction, and the uterus may adhere to the abdominal wall.

No. 5. This shows the Mayo-Gilliam or Internal Alexander. In this operation the perforating clamp does not pierce the fascia but goes between the fascia and the outer surface of the rectus muscle to enter the internal ring and grasp the round ligament, and dragging it outward in the newly created channel and securing the ligaments of either side to one another in the mid-line, beneath the fascia.

This operation secures good position, and like the Gilliam operation has good supportive power, and there is no danger of intestinal obstruction, or labor complications. However the two loops are joined in the mid-line and the uterus may adhere to the abdominal wall.

No. 6. This shows the procedure of operation of utero-sacral suspension by shortening the utero-sacral ligaments. A suture is passed through the ligament at a point one inch from the rectum and the suture is then taken through the ligament at a point the same distance from the uterus. The left half of this slide shows the relaxed ligament and the suture in place ready for tying. The remainder of the slide shows the operation completed. The same technique is done on the other side.

In this operation the cervix is well drawn backward, but the uterus is pulled downward. Alone this procedure is inadequate and insufficient, and is best combined with another procedure.

No. 7. This shows the Simpson Operation, one which I think is ideal in all instances where suspension of the uterus is

required. The abdomen is opened by the low mid-line incision. After opening the abdomen the round ligaments are grasped at a point about one and a half inches from the uterus. Instead of puncturing the fascia I pass the perforating clamp beneath the fascia and over the upper surface of the rectus muscle keeping the point of the large Kelly clamp, that I use, directed upwards to avoid injuring the fibers of this muscle. As soon as the outer border of this muscle is passed, the point of the clamp is directed downward to enter the internal ring, and is gently pushed between the layers of peritoneum of the broad ligament to the point on the round ligament previously indicated. The ligament is grasped and gently withdrawn, and secured to the under surface of the fascia by three sutures of medium weight Fagenstecker linen. The same is done on the other side.

This operation is easy to execute, and certainly secures good position of the corpus. The supportive power is excellent, and there is no danger of intestinal or labor complications. The strong portion of the ligament is used and relapse is extremely uncommon. With strict technique there is no danger in using linen. This operation to my mind combines all of the good points and has no objectionable features.

No. 8. This slide is a cut from an accepted authority on anatomy, showing a sagittal section of the female pelvis with the normal position of the uterus, in ante version and slightly ante flexed.

No. 9. This represents a section of the pelvis showing the anatomic result of the Simpson operation. It shows the position of the uterus as does the previous slide from an atlas of anatomy.

No. 10. This slide represents some personal variations in the technique as applied to the last named operation. As mentioned before no perforation of the fascia is made. There is an excellent method of closing the puncture when it is made, but it is not necessary for a satisfactory result. In the old method the round ligaments were drawn out in the shape of a hairpin as shown in the left side of the slide, and secured by three sutures as shown. This method throws

all the strain on one suture, that is, the one at the bend, and increases the possibility of relapse. In the method shown on the right, the round ligament is spread out on the under surface of the fascia in a triangular manner, and one suture used at each. This distributes the strain equally on all three sutures, and gives much better action of support, thereby lessening the possibility of any recurrence.

I have just shown the anatomic result, and I think my experience with this operation allows me to say that it produces a symptomatic result as well, when properly combined with treatment of the associated lesions.

DISCUSSION

DR. W. S. FULTON, Wheeling:

I think all of us who have been doing surgery for twenty-five or thirty years are not inclined to make many changes in the work that we have been doing and which has proven satisfactory. I remember early in my surgical career I thought the best thing for me to do was to find some man, some surgeon, about forty-five years of age who had had wide experience and had been able to sift the chaff from the straw and sit there and watch him do his work. In all the operations for retroflexion and ante-reflexion, I think the principles are based on the Gilliam operation. I think the doctor has taken many of the principles of the Gilliam operation in the work he has done. The modified Gilliam operation has been satisfactory in my hands, and I think it has been accepted by the profession everywhere. Unless we take the view of Dr. Hunner, who claims that all discomfort in the pelvis is due to stricture of the ureter, I do not believe we need regard the claims that no operation should be done except for prolapse.

I want to thank the doctor for the work he has done. It is the young men who advance new thoughts and new views and who make the advance. I should like to see this section turned over to the young men of West Virginia.

What percentage do you find of cases of varicosity of the broad ligament, and what do you do for them?

DR. W. W. GOLDEN, Elkins:

I wish to express my appreciation of Dr. Fisher's paper. It is a splendid review. I have done all the operations at one time or another, and I believe the modified Gilliam and the Baldy-Webster are the most serviceable. I enjoyed the paper very much.

DR. FISHER, closing the discussion:

I did not attempt to present anything new except the traction suture and the little method of suturing the round ligament beneath the fascia and tying it in a triangular manner instead of the hairpin manner.

Someone asked a question about the varicosities in the broad ligaments. I took gynecology and surgery under a rather strict man and had a rather hard time. One of

the things pounded into my head before I went to school was that water will not run uphill—and neither will blood. I think we do not have to do a thing for it except put the uterus up where it belongs. Leave the veins alone. That is my personal view—correct the position of the uterus and leave the veins alone.

I must indeed appear ungrateful not to express my appreciation in being here, particularly being on the program in this section, and for the kindness of the discussion. I do not know everything about suspension operations, and must leave out many things, and feel somewhat like Sydney Smith, "and have the courage to be ignorant of a great number of things in order that 'I' may avoid the calamity of being ignorant of everything."

SURGERY OF ACUTE ABDOMINAL CONDITIONS *

By ALBERT G. RUTHERFORD, M.D., F.A.C.S.

Welch, W. Va.

DURING the past decade much has been said and written concerning the so-called "acute abdomen." The celebrated surgeon, John B. Deaver, wrote extensively on the subject many years ago. In reviewing the literature, Eliason in 1925 found fifty articles; Thompson in March, 1926, gives 123 references, and by this time more than 200 articles have appeared in the literature dealing with the acute abdomen. It is evident that the subject has been discussed from every available angle.

Yet for every discussion which has found its way into print there have been thousands of abdomens which have presented acute conditions which only the surgeons could relieve. Not all the men called upon to make a hasty entrance into an abdomen presenting a pathological crisis get the same amount of advertising and of criticism as those who attended the late Mr. Rudolph Valentino, but the history of less widely known patients is strikingly similar, even though it is never recorded in all its sensa-

tional details by the New York City "tabloids." Acute abdominal crises continue to arise in everybody's practice, and no amount of writing in medical journals, no elaboration of these, no compilation of text-books, can stale a subject which is so very much alive and prevalent as this one. Until we are all competent to make the diagnosis, differential or otherwise, promptly and unerringly; until our surgical technique has reached the point where no further perfection is possible, and our results are such that convalescence from such operations becomes merely a restful vacation for our patients; until that happy day arrives, the last word concerning surgery of an acute abdominal condition will not have been said.

In the brief time allotted to me on this occasion it would be impossible to mention every condition which might arise in the human abdomen calling for immediate surgical intervention. My main purpose, then, is to bring to your attention certain well known principles the application of which are of unquestionable value. Ab-

* Presented to the Sixtieth Annual Meeting of the West Virginia State Medical Association at White Sulphur Springs, June 22, 1927.

dominal pain is a complaint which calls for speedy diagnosis and treatment.

Chief among the acute conditions of the abdomen which are daily brought to the physician is appendicitis, and this is closely followed by cholecystitis, perforated ulcers, intestinal obstruction from a variety of causes, ectopic pregnancy, and strangulated hernia. In all of these the first prominent clinical sign is severe abdominal pain, usually attended by nausea or vomiting, and on palpation will reveal a variable amount of marked tenderness and rigidity of the abdominal wall. Given this uniformity in initial manifestations, it is evident that much depends upon the promptness and accuracy of the diagnosis. This diagnosis in nine cases out of ten is not made by a surgeon but by a general practitioner, and in those cases where the surgeon is called upon to make the diagnosis the abdominal condition, whatever it may prove to be, has ordinarily advanced so far as to present a very desperate surgical problem. To make a correct diagnosis in an advanced case is an easy matter; we all can do that. The clever man is the one who finds out what the trouble is when it is just beginning, and there is still time to straighten things out easily and rapidly, and that surgeon is indeed fortunate who sees his patients before they have been subjected to a more or less extended period of "watchful waiting." The slogan fastened upon the surgical profession by certain self-styled clever news writers—"when in doubt operate"—actually has a sound basis of common sense. In the life of the physician every case seen imprints upon the mind certain clinical pictures which are seldom forgotten. The general practitioner can devote his time to no better purpose than that of improving his ability to differentiate various acute abdominal conditions. It is surprising indeed that the great surgical clinics of this country today are attended mostly by the surgeons rather than by medical men. To my mind these clinics are the amphitheater where one can correlate the symptoms of disease with the pathology of the living.

Very few of these illnesses which appear in supposedly healthy persons without im-

mediate previous warning are actually new manifestations. This, of course, takes no account of traumatic injury, which I shall not discuss here because there is altogether too much to be said about it. An acute appendix or cholecystitis does not arise in an appendix or gall-bladder previously healthy, except under conditions so rare as to be merely the exceptions which go to prove the rule. Thus the history becomes of the greatest moment, and by process of elimination we have good hope of reaching a correct solution of our problem.

Acute appendicitis is a disease of all ages, all races, and all conditions of life with little seasonal variation, but apart from this condition the age and sex of the patient are worthy of the first consideration; in an infant, the screams of acute pain, the rigid abdomen, vomiting and prostration are more likely to indicate intussusception than anything else; little babies do not develop appendicitis or inflamed gall-bladders. A child of two years old or over may suffer an acute appendicitis, however, and is subject to several other possible causes of similar manifestations, such as pneumococcus peritonitis, and pyelitis. In dealing with young children one must bear in mind how often pathology within the chest may set up symptoms precisely analogous to those offered by an acute abdominal condition.

In the adolescent of either sex we must differentiate among a number of pelvic conditions, such as torsion of the spermatic cord or twisting of the pedicle of an ovarian cyst. Hernia, revealed either by history or physical examination, is so frequently a forerunner of an acute abdominal crisis that the importance of its establishment can hardly be over estimated. That it is relatively uncommon makes this caution all the more impressive.

When our patient has reached "man's estate" the possibilities widen and the diagnostician's perplexities proportionately increase. If we can elicit a history of "indigestion" with perhaps a remembrance of the fact that the pain was always worse immediately after eating, we may be able to recognize the perforation of a duodenal ulcer of relatively long standing—a comparatively

common occurrence. Because three patients out of four will turn out to have acute appendicitis, we must take the greatest pains in picking out the fourth man. Cholecystitis occurs more commonly in subjects past their youth, but young people do have it often enough to make it necessary to rule it out before making up our surgical minds. The fat married woman—especially if she has borne many children—should always be questioned and examined with this possibility in mind; and ectopic pregnancy and pelvic inflammatory disease in its various aspects are common to women in the child-bearing period.

The character of the pain may be of some help in diagnosis; a steady unrelenting ache is more likely to be produced by an inflamed appendix than pain of a more paroxysmal character. Therefore, when the patient "doubles up at intervals" we are more likely to be dealing with renal, intestinal, or biliary colic, than with a perforation, or acute infection of a hollow viscus. In conditions producing internal hemorrhage—notably the rupture of a pregnant tube, Cullen of Baltimore pointed out: "That there is always to be seen a bluish discoloration around the umbilicus." The pain of a pregnant tube, congested ovary, salpingitis, stone in the right ureter, or right pyelitis, is usually localized from the beginning of the attack.

If the history brings out the fact that the sufferer from an acute abdominal condition has long been plagued by right-sided pain, the seeker after diagnosis must be careful not to jump at the conclusion that he is confronted by a chronic appendicitis, suddenly to become acute. One must remember that in visceroptosis the abdominal organs have shifted their normal positions often giving rise to abdominal pain. In this individual there is always the possibility that the proximal colon may be abnormally movable, and that nature has made an attempt to keep it where it belongs by "tacking" it here and there by bands and adhesions, and that some of these have caused stasis or obstruction more or less complete, volvulus, or half a dozen other complications, any one of which may produce acute abdominal symptoms.

In diagnosing acute abdominal conditions

one must bear in mind certain aspects of medical diseases which may simulate the acute abdomen, notably, typhoid fever, cardiac decompensation, angina pectoris, acute nephritis, tubercular peritonitis, arteriosclerosis with hypertension and others. So the thorough examination of the patient with different instruments of precision, and the examination of the urine should go hand in hand with the examining finger.

Very often, however, the greatest mistake made by the abdominal surgeon is the waiting for the results of a blood count, and in the meantime watching for a rise of temperature, absence of peristalsis and all the other indications of active peritonitis. The time for surgical interference is before peritonitis occurs, for if not, by the time its characteristic manifestations are in evidence, the best of surgical procedure may prove unsuccessful. "Acute abdominal pain ushered in by a chill and subsequent fever of 104, plus a high leukocytosis is usually due to some extra-peritoneal infection, pneumonia, pylephlebitis, pyelitis or an intra-uterine infection." The sudden agonizing pain of a perforated ulcer is characteristic; and like a gunshot wound of the abdomen demands immediate attention. The recovery in these conditions increases in proportion to the promptness of the diagnosis and treatment.

It is well known that many cases of incipient appendicitis have ended fatally and others have become much worse soon after the administration of castor oil or its equivalent. Many of you remember the favorite rhyme of John B. Deaver in speaking of appendicitis:

"Perforation means purgation in an appendix kink and bad,

Food and drink worry him and aperients drive him mad."

When despite all our efforts, our diagnostic differentiation is insufficient to bring out clearly the condition the patient presents. To temporize and to delay is to invite disaster and an exploratory operation should be the method of choice.

In an abdominal emergency procrastination leads to failure. Don't "wait and

watch" but "see and act." This has been well said by Moynihan. To "go in quick and get out quicker" should be the laudable, if slightly ungrammatical aim of the abdominal surgeon. Where one patient has been spared an unnecessary operation, a thousand have died because surgical interference was delayed or omitted. Often the surgeon needs to be not alone a skillful diagnostician, but a persuasive student of human nature as well. He must surmount social and economic barriers too numerous to list, and in the stress of conflicting emotions and the tenseness of the dramatic situation which the acute abdominal attack usually presents he must keep his head and never for a moment lose sight of the one paramount factor in the situation—the outcome for the afflicted. So much has been said and written about the over-anxiety of surgeons to operate on the slightest pretext—that many of the most conscientious hesitate when the diagnosis is still in question. But the saying "he who hesitates is lost," was never more applicable than in this question of surgical intervention in an acute abdominal crisis. Moral courage is essential, and the operator should have such faith in his own wisdom of choice that he can communicate it to those who at first thought may offer him opposition. No one who lacks self-confidence should ever consent to undertake it.

Thus the acute abdominal emergency brings out the highest surgical qualifications. Every case presents features peculiar unto itself and it will forever remain a baffling problem, calling into action every faculty which minute observation backed by thorough knowledge and extensive experience, can master. We must not fall into the delusion that any case is to be handled by some set of fixed rules.

He is a human being, suffering intolerable pain, fearful for his life, and whether he be the screaming infant, who fights off the examining finger from the spot which will tell far plainer than words the seat of his trouble, or the philosophic elder who has long endured the gradual encroachment of an intestinal neoplasm, he must be approached with an open and unprejudiced mind,

examined thoroughly, and all the evidence he can present, fairly and impartially balanced. Yet all this must be done with the utmost speed consistent with accuracy, the decision must be made and acted upon without delay, and there must be no hesitation, no loss of courage, be the outcome what it may.

Thus the acute abdominal crisis becomes the highest test of surgical efficiency. He who can meet it courageously and satisfactorily is really entitled to believe himself a true master of that high and useful calling.

LITERATURE

Barksdale, J. W.: Acute Conditions within the Abdomen. Trans. A. M. A. Section on Surgery, General and Abdominal, 1925, p. 256.

Deaver, John B.: Acute Abdomen. International Clinics. 35th Series. Vol. III, p. 1, Sept. 1925. The acute (Non-Traumatic Abdomen, Boston M. & S. J. March 5, 1925, excii 427.

Eliason, E. L.: Surgical Emergencies of the Abdomen. Ann. Surg. May 1925, lxxxi, 917.

Lipschutz, E. W.: Right-Sided Pain in Relation to Abnormality of the Proximal Half of the Colon. Internat. Clinics, 35th Series, Vol. III, p. 24, September, 1925.

Murphy, George H.: The Abdominal Emergency. Canadian, M. A. J., October, 1926, xvi, 1165.

Roth, Henry: The Diagnosis of Acute Surgical Diseases of the Abdomen, N. Y. State J. M., Apr. 10, 1925, xxv, 599.

Thompson, W. M.: Surgical Management of the Acute Abdomen. Surg. Gynec. & Obst., March, 1926, xlii, 368.

Cope, Z.: Early Diagnosis of the Acute Abdomen. Oxford Medical Publication, 1921.

DISCUSSION

DR. SHELTON HORSLEY, Richmond, Va.:

Any paper put so forcibly and with as much common sense as Dr. Rutherford's on surgery in the chief conditions in the abdomen always excites our interest. The subject, as he said, is a large one, and to discuss it is like a crack at creation. The operations he did discuss were certainly handled with excellent judgment. I think as we grow older and probably have a little more experience the cumulative effect of our catastrophies begins to weigh a little with the makes us possibly a little impatient with the type of dogmatism in which someone says you must always do this or you must never

do that. "Always" and "never" are dangerous words in any scientific procedure, and I think Dr. Rutherford dodged this pitfall.

In an acute condition there are two or three things which are obvious. In the first place, gall-bladder conditions, appendicitis, and ectopic, if typical, do not worry us at all. It is the atypical cases that worry us. Spondylitis of the spine, pyelitis of pregnancy, pneumonia in a child, are things that occur and that lead almost any surgeon, even of experience, into errors that we must confess. The reason that most children have ruptured appendix and peritonitis is probably not because of the fact that the incidence is higher than in adults but because we do not diagnose it as soon. Even when ruptured the diagnosis is not always clear. In an acute condition, when we have pain beginning in the epigastrium or around the naval, or with tenderness on the right side, I do not care what the other symptoms are or what the blood count is, I go in expecting to find appendicitis, and I do not recall that I have ever been disappointed. On the other hand, there are cases in which the appendix is postcecal or up behind the liver in which the symptoms are not typical, and in those cases we often have disaster. I remember a doctor in Kansas City asking me why, when the appendix is not there the pain is always there. I think the answer is that that is not true; when the appendix is in the pelvis the pain is not there, and when it is high up the pain is not there. The surgeon who rushes in on every possible emergency without even a blood count unquestionably is going to get into difficulties; on the other hand, the surgeon who waits and vacillates when the case is fairly plain is not doing justice to his patient. The question of surgery has to be settled, then, by careful consideration, and that may occupy days or may occupy only a few minutes. It has to be according to conditions. If it seems that the patient is suffering from some intra-abdominal condition in which surgery seems to be indicated, as Dr. Rutherford says, provided a blood count has been made and a Wassermann

taken and ruling out serious heart lesions, I think the safer course is to operate—not an extensive operation, however, for in many cases that carries additional and serious risk.

DR. W. W. GOLDEN, Elkins:

I was glad to hear Dr. Rutherford, in his excellent paper, while stressing the importance of going in when an acute surgical condition is more or less obvious, at the same time stressing the importance of more accurate diagnosis. Some say it is necessary to make a diagnosis of a surgical abdomen and go no further. I believe an honest effort and an earnest effort should also be made to make an anatomical diagnosis, after that.

I was also much interested in the manner in which he presented the differential diagnosis, dwelling so much upon what I might term circumstantial evidence, family history, age of patient, etc. Recently, along that line, I operated on a case of intussusception in a child; and that happened to be the third child in the same family with the same trouble. True, the symptoms and signs were obvious in that case and would have made the diagnosis for operation had we not known that fact, but it gave us a sense of comfort when we knew that two other cases in the same family had had the same trouble within a few years.

Dr. Rutherford, of course, did not make any claim to completeness, and so I might add one more acute abdominal condition which is evidently very rare. That is torsion of the Fallopian tube. The patient is in the hospital now. The tube was the seat of a pyosalpinx. There were three twists, three revolutions of the pedicle—that is, of the isthmus, the direction of the twist being the same as that of the hands of a clock. I confess that we did not make a diagnosis beforehand; I doubt if anyone could have.

I think the paper was excellent.

DR. RUTHERFORD, closing the discussion:

I simply want to thank Dr. Horsley and Dr. Golden for discussing my paper. That is all I have to say.

FUSOSPIRILLOSIS OF THE OROPHARYNX*

By W. E. DICKERSON, M. D.
Princeton, W. Va.

FUSOSPIRILLOSIS is a specific infectious disease, due to bacillus fusiformis and spironema vincentii, characterized by a local ulceration and pseudomembraneous exudate, usually upon a mucous membrane, and by constitutional symptoms.

The frequency with which this infection occurs in the mouth and throat has led to the acceptance of the terms Vincent's Angina when involving the throat and Vincent's Infection, or Trench mouth, when involving the oral cavity. However, regions other than the oropharynx are often attacked, namely the vagina, prepuce, and glans penis being the most common sites.

The organisms are transmitted from one person to another by contact, by the use of infected articles, as eating utensils, pipes, musical instruments, and by carriers. The organisms are found in the mouth of many apparently healthy individuals. Overcrowding, overheating in the winter, closed automobiles, and poor ventilation all add to the incidence of this condition.

"Bercher contends that the lowering of the resistance of the buccal mucous membrane is the chief and primary cause, and the organisms play a secondary role. He suggests that such reduction of resistance may be brought about by the following causes:

1. A general condition, such as diabetes or scurvy, or by lead, phosphorous or mercury poisoning.
2. The infection accompanying the eruption of wisdom teeth.
3. A trophic disorder of the mucosa due to chronic alveo-dental irritation.

He lays great stress on the latter and seems to feel that this is the most frequent underlying factor, the removal of which is necessary before a cure can be affected.

Bloodgood makes the assertion that he has never found the organism of Vincent's

Angina in a mouth from which all the teeth have been extracted. "Apparently the organism can exist," he says, "only in the crevices about the teeth, and as a rule one does not often see Vincent's Angina when the teeth are clean and smooth, when only the enamel is exposed, when the gums have not receded, and when pyorrhea is absent."

Fusospirillosis is due to a fusiform bacillus and the spironema Vincentii. These two organisms are found constantly in the lesions—whether they are growing in symbiosis or are different forms of the same organism is a mooted question. A recent contributor has published some interesting pictures of the spiral forms apparently issuing from the body of the fusiform bacillus. Tunnick has demonstrated that the spirochetes precede the fusiform bacilli in the invasion of the tissues and on this basis separated the local pathologic area into three zones: the deepest or inmost of these is rich in spirochetes, the intermediate zone contains spirochetes and fusiform bacilli, and in the outmost, which is the necrotic membrane, most organisms are found together with other bacteria. This observation gives weight to the contention that the spirochete is responsible for the spread of the disease.

There are two types of the infection, one a mild type appearing on the surface, not affecting the mucous membrane and progressing slowly. The fusiform bacillus predominates in this type. The other a severe type which progresses rapidly, involves the mucous membrane and gives constitutional symptoms. The spironema Vincentii predominates in this type.

We find a painful inflammation along the margin of the gingival tissue, especially between the teeth. This is characterized by a sudden onset and by the formation of a grayish slough which sometimes extends rapidly and at other times slowly. The slough can sometimes be removed by a swab or sharp instrument exposing a red hemor-

* Read before the meeting of the Mercer County Medical Society at Princeton on May 19, 1927.

rhagic surface. The blood vessels are early involved resulting in hemorrhage. The breath has a characteristic fetid odor, the tongue coated with a thick fur, constant dribbling of saliva, sleeplessness, inability to take solid food and occasionally a slight elevation in temperature with an increase in pulse rate. If the throat becomes involved the constitutional symptoms are more pronounced and lymph gland involvement becomes more evident. The sloughs and ulceration frequently become extensive and sloughing of the blood vessels occurs with hemorrhage, at times a fatal degree. The hemorrhage is spontaneous and frequently occurs during sleep.

Vincent's infection is a good deal more common than was formerly believed. It is diagnosed by the clinical picture as given above in the great majority of the cases, but we have several borderline cases in which the diagnosis is not so easy. In these cases, particularly, examination of a direct smear should be made. It is very difficult to grow on ordinary culture media and when only a culture is taken the real condition is oftentimes overlooked. Examination of the direct smear stained with carbol fuchsin, gentian-violet, methylene blue shows the bacillus fusiforms and spironema Vincentii.

This condition should be differentiated from several other types of infection, namely: (1) Diphtheria—here we find the constitutional symptoms are much more marked, the temperature is higher and there is more prostration. The lymph glands are but little involved, and the presence of the Klebs-Löffler bacillus, on culture; (2) Syphilis—here the membrane is more irregular, there is very little pain, the lymphatic glands are not tender, and the clinical history and a positive Wassermann should clinch the diagnosis. (3) Mercury and bismuth stomatitis—of course here the clinical history would be sufficient. (4) Acute Leukemia—in which the blood picture of a permanent increase in leukocytes should help make the diagnosis, together with a differential count.

Often Vincent's infection is coexistent with one of these and we should therefore

do a direct smear on all lesions in the oral cavity. We do routine smears on cases with a urethral discharge; it is just as simple to make a smear on all oral lesions for examination and thus know whether we are dealing with a Vincent's infection or some other condition.

The prognosis is good; proper treatment will effect a cure. Occasionally a case may prove fatal from ulceration of blood vessels taking place with severe hemorrhage. Relapses are more difficult to cure.

Treatment may be divided into two classes, prophylactic and active. Reasoner and Gill have shown that solutions of ordinary toilet soap have a selective action on this class of organisms and have a definite spirocheticidal effect, and their use in dentifrices assist in keeping the oral cavity free from mouth spirochetes, thereby affording a measure of protection against tissue infection.

In spite of the fact that Vincent's infection has only been given much study since the beginning of the war, it has been treated with various drugs. Arsphenamine, both locally and intravenously has probably been used more than any other one drug. Some men give glowing reports as to its virtue. Sutton reports a case occurring in a patient under treatment for syphilis; Hillsman and Driscoll report a similar experience which they say does not speak well for the intravenous medication of arsphenamine as a cure. Local cleansing, followed by local application of neo-arsphenamine did not bring about a change for the better in this case. Rapid improvement of this case was coincident with the intravenous use of tartar emetic which they contend points to the efficacy of this form of treatment. Driscoll has been getting excellent results with a sterile one per cent tartar emetic solution, beginning with 5 c.c.'s, and diluting with distilled water to make 10 c.c.'s to an adult. The injections are repeated daily or every other day, depending on the condition of the case, and the amount of tartar emetic is increased one cubic centimeter with each succeeding dose up to 10 c.c.'s. The solution should be injected very slowly and great care should be taken to be sure that none

of the solution is spilled in the subcutaneous tissue. Such an accident will cause great pain. Occasionally a reaction resembling anaphylaxis is said to occur. This can be relieved by giving adrenalin chloride (1 to 1000 solution) minims v to x. Bloodgood contends that sodium perborate will effect a rapid cure in more than 95 per cent of the cases. A thick paste of the chemically pure salt should be made with water and spread over the teeth and lesions present, with clean fingers. The patient holds this paste in the mouth for about five minutes. The mouth should then be rinsed with warm water. When the entire oral cavity is involved with extension to the fauces and pharynx, he advises, in addition, a gargling with a thinner solution two or three times a day.

Local treatment should consist of the following measures: (1) Remove all the necrotic debris; (2) scale teeth superficially; (3) stop the use of a tooth brush until all activity has ceased; (4) application of sodium perborate paste.

A number of drugs have been used with a varying degree of success. Some of them are Churchman's mixture, which is composed of neutral acriflavine and gentian violet; carbol fuchsin; various antiseptics as picric acid, iodine, silver nitrate; peroxide of hydrogen; potassium permanganate; 5 to 20 per cent solution of trichloroacetic acid.

In my own cases I have been using Fowler's solution locally and tartar emetic intravenously with very good results.

I wish to report the following cases occurring in my practice recently:

Mrs. J. H. E., white; age 24—Multipara—Past history, negative. Patient was taken ill on the night of March 8 with abdominal pain and vomiting. She did not have a sore mouth at this time. Next day she felt better but her mouth was very sore and had begun to bleed around the gum margins. I saw her first on the night of March 10, at which time she was oozing rather profusely from her upper and lower gums. She was suffering with great pain in her mouth, could not take food except liquids,

and due to the excruciating pain she could only partially open her mouth. There was a very foul odor to her breath and her teeth were loose. The gums had receded and there was a grayish dirty necrotic membrane along the gums, together with numerous blood clots. Her temperature was 99 4/5, pulse 118, respiration 22. She was using a 20 per cent Fowler's solution as a mouth wash at this time. March 11 her condition was practically the same with the gums still bleeding. I gave her 5 c.c.'s tartar emetic (1 per cent solution) intravenously. On March 12 I gave her 6 c.c.'s tartar emetic, at this time her temperature was normal, pulse 120—respiration 22, hemoglobin 55 per cent. I put her on Fibrogen orally over cracked ice giving three doses, one at 3 p. m., one at 8 p. m., and one the following morning. Bleeding stopped after the first dose was given. On March 13 she was feeling more comfortable, temperature normal, pulse 116, respiration 20. A dirty grayish membrane was seen along the gums and on the tonsils. She could swallow more easily. Seven c.c.'s of tartar emetic was given intravenously. March 14 the ulceration had much improved on the left side of her mouth, her throat and the lower right side of her mouth, with very little change in the upper right side. Eight c.c.'s of tartar emetic was given intravenously. That night about 11 o'clock she began bleeding from her gums again. I saw her about 3 a. m. and found the bleeding had checked. It had been coming from the upper right gums. She went to sleep while I was there. She died next morning about 8 o'clock, presumably from hemorrhage which set up again while asleep.

BIBLIOGRAPHY

1. Barbor, Creighton: Fusospirochloa, Nelsons Loose Leaf Medicine, Vol. 2, 34A to 34E.
2. Hutton, James H.: Vincent's Angina. Medical Journal and Record, March 19, 1924.
3. Bloodgood, Joseph Colt: Oral Lesions Due to Vincent's Angina; What Every Physician and Dentist Should Know About Its Recognition and Treatment. Journal A. M. A. Vol 88, No. 15, April 9, 1927.
4. Reasoner, M. A. and Gill, W. D.: The Use of Soap in the Prophylaxis of Vincent's Infections. Journal A. M. A., Vol. 88, No. 10, March 5, 1927.
5. Bowman, Wilbur M.: Vincent's Angina or

Ultero-Membranous Tonsillitis — Diagnosis and Treatment. Va. Med. Monthly, May, 1925.

6. Miller, Hiram E. and Epstein, Norman: Vincent's Angina, California and Western Medicine, May, 1926.

7. Cobson, George: Vincent's Angina. The Atlantic Medical Journal, September, 1924.

8. Hillsman, John A., and Driscoll, T. Latane: Report of a Case of Fusio-spirillary Infection Which Developed During Active Arsphenamine Treatment. Va. Med. Monthly, Vol. 52, No. 5, August 1925.

9. Sutton, Irwin C.: Vincent's Angina Occurring in a Patient Under Treatment for Syphilis. Journal A. M. A., Vol. 83, No. 24, Dec. 13, 1924.

SURGICAL TREATMENT OF PULMONARY TUBERCULOSIS *

By SPARRELL S. GALE, M. D.
Roanoke, Va.

IT IS NOT the purport of this paper to cover the whole field of the surgical treatment of pulmonary tuberculosis. The surgical treatment of pulmonary tuberculosis had its birth in Germany and Switzerland, and was first brought to Canada by Archibald in 1912. Since that time it has been taken up by a vast number of surgeons throughout the States and is now a recognized method of treatment in selected cases of unilateral pulmonary tuberculosis.

Surgery of the chest cavity is not confined to tuberculous conditions. Thoracic surgery may be indicated for a number of conditions in the thoracic cage, viz., unilateral tuberculosis, empyema, abscess of the lung, gangrene of the lung, bronchiectasis, benign and malignant tumors of the lung or mediastinum, stenosis of the esophagus due to benign or malignant conditions, diaphragmatic hernia, congenital or traumatic, etc. So the field of chest surgery is broad and comprehensive, the surgical treatment of pulmonary tuberculosis simply being one of the many conditions that can be treated surgically.

"This therapy, which has as its aim pulmonary collapse, is based on sound scientific principles whether the collapse is brought about by resections of ribs or by air injection. This form of treatment proves itself in line with natural healing because it aims to produce conditions through which an infected system and its manifestations are brought to healing naturally, viz., by general biological phenomena and by local re-

placement of tuberculosis tissue with fibrotic scar."

"The *sine qua non* in the treatment of tuberculosis is immobilization. Immobilization plus collapse obliterates the cavities, increases the blood supply and stimulates the formation of fibrous tissue. The lungs like other organs of the body have reserve properties and the good lung compensates for the diseased lung after its collapse, generally with little embarrassment to heart and general circulation."

There are certain definite indications and contra-indications for the surgical treatment of pulmonary tuberculosis and to ascertain these indications and contra-indications requires the closest cooperation between the tuberculosis specialist, roentgenologist and surgeon.

Indications: Surgical compression may be said to be indicated largely for unilateral lesions, or with slight involvement of the opposite lung, when all other treatment, including a sufficiently long sanatorium regime and attempted pneumothorax, has failed. In certain cases thoracoplasty should be chosen in preference to pneumothorax. It is preferable to the operation of intrapleural pneumolysis or to the use of a cautery for adhesions except when such adhesions are few and slender. Thoracoplasty is preferable to attempts to stretch or tear with high gas pressure adhesions which may be near superficial lesions or cavities because of the danger of lung rupture and rapidly fatal empyema.

Contra-indications would be in cases

* Read before the West Virginia State Medical Association, White Sulphur Springs, June 23, 1927.

where artificial pneumothorax causes sufficient compression, or there is extensive tuberculous involvement of other organs. Cases showing myocardial changes, valvular disease or nephritis are bad surgical risks. The very old and the young do not stand this operation well.

Principal causes of death following thoracoplasty are hemorrhage, shock, heart failure, pneumonia and sepsis. Every effort should be made to combat these conditions with proper preliminary treatment prior to operation, digitalizing patients in whom it is indicated and by giving fluids per rectum, subcutaneously or intravenously when needed. After the operation morphin or heroin is probably the safest and best drug that we have. It should be given in sufficient doses to quiet restlessness and suppress the cough. Fluids should be used freely when indicated for the post-operative treatment the same as in the preparatory treatment.

Pre-operative Management: Patients should be carefully studied before operation in order to determine the condition of the heart. They should be taught to cough and empty their lungs, especially cavities, and this should be done at least two hours before the operation.

Anesthesia: Ether, ether-chloroform mixture, nitrous oxide and local anesthesia have all been used. In all of our cases until recently we were able to successfully complete the operation with the pre-operative administration of one-fourth grain of morphin and 1/100 grain of atropin, using local anesthesia, one-half per cent of novocain, and high vertebral block of the intercostal nerves with a free infiltration of the operative field. This anesthesia has been entirely satisfactory in our cases. In no case has it been necessary to resort to a general anesthetic on account of pain or discomfort although as many as nine or ten ribs have been resected at one sitting.

In a small number of cases recently, we have been using preliminary hypodermics of one-eighth grain of morphin with 2 c.c. of magnesium sulphate one-half hour before operation, ethylene gas, and one-half per cent novocain infiltration of the tissue, keeping the patient in a state of analgesia. This

we find has permitted us to shorten the time of operation very materially and has caused less shock and certainly works much better in highly nervous patients.

Operative Technic: The unknown quantity in these cases is the amount of operative shock these poor surgical risks will stand. In the very bad risks phrenicotomy is indicated. It reduces the lung volume one-sixth to one-third. It is useful as an index of the patient's resistance. Frequently following phrenicotomy there is a very marked improvement in the patient and later a complete thoracoplasty can be done as is illustrated by the following case.

Miss B., age 28, referred from the Mt. Regis Sanatorium to the Lewis-Gale Hospital on March 14, 1927, on account of advanced unilateral tuberculosis, left side. She gives a history of having had tuberculosis for the past nine years. She tires easily, is short of breath, has chronic cough, expectorates thick, yellowish material, has had a number of hemorrhages. The last was about seven months ago. During the past several months her symptoms have become much worse. She has no appetite. Cough is worse. She is losing weight rapidly. Has had pleurisy on the left side two or three times. Five months ago she had pain in the region of the right kidney with frequent urination. At that time her feet and ankles were swollen. Two weeks ago artificial pneumothorax was attempted on the left side. This was not successful. Physical findings revealed an advanced tuberculosis involving practically the whole of the left lung. Right lung apparently was negative. Patient's temperature was about normal. Pulse varied from 108 to 120. X-ray findings were pulmonary tuberculosis well advanced in the left lung. The right lung is practically clear; only a few small areas of mottling directly in front of the scapula in the upper lobe of the right lung, the remainder of the lung being clear at this time. Diagnosis was pulmonary tuberculosis, unilateral, confined almost entirely to the left lung.

Patient was kept in the hospital for three weeks on digitalis, absolute rest and forced feeding, trying to reduce her pulse. On

April 7 under local anesthesia my associate, Dr. Whitman, did a phrenicotomy. The nerve was removed with its branches by the avulsion method for a distance of several inches. The patient had very little post-operative disturbances and was dismissed from the hospital on April 18, eleven days after the operation, returning to Mt. Regis Sanatorium.

On April 22, Dr. Watson wrote Dr. Whitman as follows: "We fluoroscoped Miss B. last night and were so pleased with the results of your operation that I want to write and congratulate you on your good work. We fluoroscoped her and could follow the diaphragm perfectly. I would say that at least one-third of her lung space has been obliterated and she has greater immobilization on this side"

In a personal communication from Dr. Watson on June 17 he reports as follows: "Miss B. has returned home. When she left the sanatorium her respirations had slowed down very materially. Pulse had dropped from 120 plus before the operation to below 90 while at rest. Cough is slightly improved and she felt generally more comfortable in every way. She is to be seen in three months to determine whether, or not, she is in condition for a thoracoplasty."

Operation of Thoracoplasty: The best exposure is obtained through a hockey-stick incision. There is a difference of opinion as to whether the lower ribs should be resected first, or the upper. Gravesen says: "It is a matter of greatest importance always to apply the collapse through a thoracoplasty from below upwards."² Lilienthal formerly began his operation below but at present strongly advocates the removal of the upper ribs first. Personally all of the patients operated upon have been from below upwards.

After the exposure of the ribs the removal of the periosteum up to the process of the spine is a very important step in the operation as it is essential that the posterior end of the ribs should be cut as close to the spine as possible. Any part of the rib remaining in this position may prevent the proper collapse of the whole of the chest cavity posteriorly. Such stumps of ribs

may also cause pain due to movements of the scapula over them. It is advisable to free all the ribs to be resected from the overlying tissues and the periosteum, because of the paradoxical movements of the lung. On account of these movements it is advisable to free all of the ribs as described, before commencing their resection. Generally speaking the eleventh rib is left intact, except in basal affections the eleventh rib may have to be included.

I wish to stress the importance of doing this operation in stages, it being much better to do too little at one operation than to do too much. The removal of the upper ribs from the fourth up is much more difficult. At this stage of the operation the assistant must lift the scapula and at the same time the paradoxical movements of the lower part of the lung have to be controlled with gentle pressure. The second rib may cause some difficulty on account of its deep situation and muscular attachments. The height of the technical difficulty is reached in removing the first rib. However, it is particularly important that a section of this rib be removed, particularly in apical cases. Otherwise the cupola of the chest will remain uncollapsed. Care is necessary to avoid injury of nerves from the brachial plexus and injury to the subclavian artery and vein. As this rib lies with its flat surfaces upward and downward, a good exposure is necessary and the periosteum will have to be removed by a special gouge. The vertebral attachments should be cut first, then the rib caught by strong forceps and lifted out of its deep position and the sternal part of the rib is then cut. One-half to one inch can usually safely be removed. In certain cases it might not be necessary to remove any of the first rib, simply to cut it.

Suiting the type of operation to the individual case is the first consideration.

BIBLIOGRAPHY

1. Johns, Dr. F. S.: Results of Thoracoplasty in Pulmonary Tuberculosis. Southern Medicine and Surgery, Vol. 89, No. 6, page 384.
2. Gravesen, J.: Pulmonary Tuberculosis (Surgical Treatment).
3. Alexander: Surgery of Pulmonary Tuberculosis.

DISCUSSION

DR. E. E. WATSON, Mount Regis:

I enjoyed Dr. Gale's splendid paper. I was pleased to note that Dr. Gale emphasized the fact that all of these cases should have sanatorium treatment first, and thoracoplastic operations should not be considered unless artificial pneumothorax has been successful and the patient has failed to improve under a strict regimen of prolonged rest. Dr. Alexander mentioned in his recent book on 'Surgery of the Chest, that complete collapse can be attained in about 33 per cent of all cases. Our results in approximately three hundred cases have borne this out. Practically all cases where no free pleural space could be found were condemned to die, until Sauerbreuch began this thoracoplastic work in Germany. In our fifteen cases of surgi-collapse, five have been completely rehabilitated, and seven have had their lives prolonged and at the same time made more comfortable. Dr. Gale has had only two surgical deaths, which is a very beautiful result when you consider the fact that he was dealing with an absolutely hopeless type of case; cases to which twelve years ago we could offer no hope. One of the pictures Dr. Gale showed was of my

own chest. I feel very keenly that there is entirely too great a lack of interest in this work among many tuberculosis specialists. Many of our larger tuberculosis resorts in the South have done and are doing practically none of this work. In fact, Dr. Gale who did our first work for us twelve years ago, when we were removing the entire rib, has been one of the pioneers in the South—I should say the pioneer, he having done more of this work than anyone south of New York.

I know we have made and are making mistakes. Dr. Archibald has been very kind in writing us and giving us constructive criticism in our work. We feel, however, that ultimately, by team work (for it takes team work between the tuberculosis specialist, the surgeon, and the roentgenologist) thoracoplasty has a great future.

When Alexander wrote his book, only about 1100 operations had been done in the world. Archibald had done about 60, which was more than any other man in America had done at that time. We feared then that this work had been taken up by too many general surgeons without sufficient experience. It is a specialized work, and for a surgeon to be successful in it he must be associated with phthisiotherapy.

BIRTH INJURIES AND ALLIED CONDITIONS

By A. A. SHAWKEY, M. D.
Charleston, W. Va.

THIS is a very large subject, but it is the intention in this brief paper to deal with only a few phases of it.

In recent years medical literature has been rich in reports of studies and investigations of birth injuries, hemorrhage of the new-born, congenital lues, congenital disturbances of the endocrine system, etc. More than three thousand articles appear annually in medical literature, dealing with the endocrines and the hormones. These

studies present problems for the obstetrician, the pediatricist, the surgeon, the general practitioner and almost every branch of medical practice.

There is yet wide difference of opinion among these investigators relative to points of great importance in these cases. For example, good authorities hold diametrically opposite views as to the wisdom of spinal drainage in new-born infants with intracranial hemorrhage. However, we shall not enter into this controversy as it is not our purpose in this brief paper to deal with the

* Read before the West Virginia State Medical Association, White Sulphur, June 22, 1927.

acute cases, but rather with the conditions as we see them from a few weeks to several months later. And we feel that the number of these physical and mental cripples that we see fully justifies this discussion.

By the law of average, according to the population there should be about seven thousand cripples in West Virginia. As a matter of fact, according to the most reliable survey available, there are about ten thousand; and a really large percentage of these come within the range of my subject. Nine per cent of all new-born infants show blood in the spinal fluid. About sixty or seventy per cent of all cephalic cases (idiots and paralytics) are caused by introcranial hemorrhage. Munro and Eustis, in a review of the literature for a period of ten years, estimate that thirty-five to forty per cent of first week deaths are due to intracranial hemorrhage.

While I am wholly in accord with and fully appreciate all scientific study and investigation, yet I propose to advocate a treatment for these various cases, which may be and can be criticised as not being technically scientific. But, at least until such time as science can give us some better method of treating these unfortunate children, I prefer to be unscientific and help them, rather than to be ultra scientific and allow them to remain in a pitifully helpless condition. No originality is claimed for this treatment, as the idea was gotten from an instructor in the New York Post Graduate Medical School several years ago; and even Paracelsus, who lived from 1493 to 1541, advocated the use of gland substances in the treatment of certain conditions. Nor is it claimed that this treatment will entirely cure these cases. It is claimed, however, that the treatment will greatly benefit and improve a very large percentage of them, and make them physically able to care for themselves in most instances.

Most of these cases are seen too late to make a positive diagnosis as to the exact primary cause of the trouble, but from examination, history and symptoms some of them seem to be due to birth trauma, some to hemorrhage of the new-born, some to congenital syphilis, and some to congenital

endocrine hypofunction or disfunction. Yet all have certain symptoms in common, or so similar as to appear to be common; and all respond alike favorably to polyglandular treatment. This causes us to wonder if in the hemorrhagic cases the ductless glands are the sites of hemorrhage, if in the cases of congenital lues the spirochetes have a special affinity for the ductless glands, whether in the cases of intracranial hemorrhage from birth trauma the endocrines suffers injury through damaged brain function or through direct injury to the intracranial members of the ductless group and from them to other members of the system through interrelation; thus all having symptoms and conditions analagous to if not identical with those of the cases of congenital endocrine hypofunction or disfunction.

We are aware that scientists claim that gland substances aside from the thyroid and possibly one or two others are impotent by oral administration, but this is hard to believe when we get results by the addition of one and another gland substance to the treatment which without them failed to give the results; for after all "the proof of the pudding is in the eating." We have seen cases improve continuously and satisfactorily for as long as four years on a polyglandular treatment alone and then show a four plus blood Wasserman, of undoubted congenital origin. One wonders why. Was the lues purely coincidental and bearing no relation to the condition, or has the spirocheta pallida a predilection for the endocrine system and by infesting it especially, interfere with its function, thus producing the symptoms, which are relieved by the administration of gland substances?

F. N. is an example of such a case. Seen at about eighteen months of age. A drooling idiot, able to sit alone but unable to stand or speak. Clothes wet and filthy from mucous constantly flowing from an ever-open mouth. After one year of treatment with pluriglandular substances, walking and talking (though imperfectly). Passed from observation for a period of two years, then returned. Running about rather over-actively and talking quite well, but with men-

tal deficiency evident in facial expression and mental activity. At this time his blood Wasserman was four plus.

Kahan says that the syphilitic virus begins by attacking the endocrine glands. Bickel of the United States Public Health Service says that the mechanism that controls the development of body and mind, the endocrine glands, are affected by syphilis, causing nanism, infantilism, gigantism, dyscrasias and dystrophies. Peltessohn says that disturbances of the central innervation and of the internal secretions of cerebral adnexa participate possibly much more extensively in the etiology of congenital deformities than has been thought. He cites as an example, bilateral congenital hip joint dislocation. Bates tells us that "Endocrinosis, or the functioning of the glands of internal secretion, determine the physical and mental processes from the cradle to the grave."

G. B. E. presents an illustrative case of birth trauma with probable intracranial hemorrhage. Breech delivery. Asphyxiated. Respiration established after an hour of effort. Did not nurse for three days after birth. Haematoma in sterno-mastoid muscle. Sat alone at eleven months of age. Seen at fourteen months of age. General muscular weakness and flabbiness. Holds head up with difficulty and for a short time only. Sits alone but does not stand. Mouth open and drooling. Disposition bad. After nine months of pluriglandular treatment, is happy, walks and talks. Mentality apparently one hundred per cent. It is true that feeding was a feature in this case as it is in practically all of these cases, but it was probably not the most important feature.

It is claimed by some that the natural improvement that comes with growth and development and corrected feeding and care in these cases and not the treatment, explains the bettered condition of the patients; but this we do not find to be entirely true. While, as would be expected, marked improvement follows correction of diet and care in these cases; still we are sure that we see much more rapid improvement when gland substance treatment is added to the

correction of diet and habits. We are also sure that the improvement continues for a longer period of time and to a more advanced degree than is the case with the correction of diet and care alone.

An extreme type of endocrine disfunction is presented by N. D. who was brought to my office when fourteen and a half months of age. Delivery normal. Breast fed. Weight eleven pounds and four ounces; exactly one-half of what it should be. Could neither stand, sit, nor hold up his head. Had no teeth. He lay a helpless mass of human flesh, absolutely devoid of any evidence of mentality. Rattles, bright toys, and even loud noises were wholly disregarded. He would hold no object, even when placed in his hand and his fingers closed around it. A bright flash light close before his eyes would elicit no reaction—neither pupillary contraction, closing of the eyes nor even winking. There were certain cretinoid characteristics, notably a thick tongue, though he slept with his mouth closed. Hands and feet were cold. There was an umbilical hernia. There was, however, no disproportion between the trunk and limbs. Put on pluriglandular treatment with emphasis upon the thyroid substance, his improvement was immediate and has been continuous over a period of four years, during which time he has successfully combatted two severe, acute infections, namely a dysenteric enteritis and a pneumonia. Now at four years and ten months of age one would scarcely detect any abnormality, except that he does not talk.

Mongolism does not properly belong in this discussion and it is more from the standpoint of curious interest than of therapeutic value that I report briefly the case of D. P.—a female, six years of age. Typical mongolian in type and appearance. Did not walk until three years old. Never cried in her life. Teeth badly decayed. Sat quietly in chair, little interested in anything. With absolutely no promise or encouragement to the mother, we put her on a treatment of gland substances, insisting that it be continued uninterruptedly for at least a year. Twice during the year the

treatment was suspended because the child had become so active that it took some one all the time to watch her. She was running, playing, climbing trees and fences; and in less than two years was in school, and getting along, though not up to the average of her classes.

In advocating pluriglandular treatment for these three cases we do not of course oppose uniglandular treatment for those cases in which it is possible to diagnose with a reasonable degree of certainty that the trouble is due to functional disturbance of a single member of the endocrine group. We are all familiar with the intimate functional interrelation that exists between the various members of the endocrine group, and we are taught that functional disturbance of one gland produces functional disturbance of other glands, yet many authorities insist upon supplying only one of the deficient hormones, in treatment.

It may be all right to correct the error of one gland by correcting the error of the allied gland that causes its trouble but we believe that in many instances the correction can be made more quickly and more completely by supplying all the various hormones that are lacking or that are deficient in amount, in so far as that can be done.

The problem of these cases is very far from solved and it is hoped that more interest will be taken in these little unfortunates to the end that better treatment may be given them and that better results in usefulness and happiness may be attained.

ABSTRACTS

Cesarean Section

A timely paper appears in the December, 1927, issue of the *Illinois Medical Journal*, (An Ethical Consideration of the Indications for Cesarean Section. By Gilbert Fitz-Patrick, M. D., F. A. C. S., Chicago).

In his article the author rather vigorously criticizes the medical profession for the in-

creasingly frequent performance of this operation on trivial indications, or for no other indications than one of expediency.

We heartily agree that too many sections are being done for obstetrical conditions which might far more safely be handled in some other manner.

It is rather difficult to believe that the recent graduates in medicine have not had instruction and thorough training in the mechanism of labor; the indications for operative procedure, etc. A personal acquaintance with a large number of the teachers of this branch throughout the country leads me to question his criticism of the teaching being given to students in the branch of obstetrics.

It would seem rather, in our opinion, that there are too few men specializing in this branch of medical practice who are by training competent to perform their own obstetric operations. Section should be done by men specializing in obstetrics, for we cannot but feel that too many sections are made by general surgeons, who are doing no obstetric practice, because these patients are brought to them by physicians who are not specializing, but who are practicing obstetrics in only a general way.

The author discusses the opinion held by many physicians, and of late by a large portion of the laity as to the safety and ease of this method of delivery. In his opinion no ethical surgeon or obstetrician is justified in making a section simply because the patient desires it, much less has he an ethical right to suggest it. In his opinion the state has a right to expect "that its women shall accept the ordinary risks of motherhood and they shall not be mutilated or handicapped in their functions of providing the state with citizens and continuing the race. It is an injustice to the woman herself, to the husband, and to the state, to perform an unnecessary cesarean section, and the medical profession should not be accessory to such injustice."

He summarizes the main points of his article as follows:

"The main points which I wish to emphasize in presenting this paper is that today in the United States there are many

surgeons doing cesarean sections for insufficient obstetrical reasons. These men are not obstetricians, having no obstetrical judgment, their motives are unquestionable and in many instances they are actuated only by monetary consideration in exposing a mother to an unnecessary risk. Many of these surgeons are not competent to perform a cesarean operation, according to modern acceptable methods, and the results which do not often come to light are frequently deplorable."

Taken as a whole the article provides much food for thought and it would seem that the ethical consideration should be given careful consideration. —J.R.B.

Hemorrhoid Operation

Most hemorrhoid operations are followed with a great deal of pain. This is due to a disturbance of the rich nerve supply of the region involved; and it may be caused by (1) the unnecessary extreme stretching or dilating of the sphincter muscles of the rectum; (2) the clamping and pulling down of the hemorrhoid tags; (3) the irritation of sutures; (4) the clamping and ligation of blood vessels, each of which has its accompanying nerve; (5) the exposure of raw surfaces, with a probable formation of granulation tissue, especially when the cautery is used.

For sometime I have been using a very simple method which seems to give good results, and the patients are very grateful to have practically no postoperative discomfort. It is applicable to the so-called external hemorrhoids as well as the internal.

The patient is given the usual preparation as for any hemorrhoid operation. The small external type may be removed under local anesthetic, otherwise a general anesthetic is given. The sphincter muscles are slightly dilated, and the hemorrhoids pulled down gently. An incision is made in the mucus membrane just inside the junction of the skin and mucus membrane. If hemorrhoids are extensive it is necessary to make four such incisions; above, below, and on each side; otherwise just along the margin of the tag; care being taken to not join the

several incisions, leaving some tissue between them. The mucus membrane is dissected back and the hemorrhoid tissue beneath is peeled out or excised. Hemorrhage is controlled by firm pressure with a sponge for a few seconds. The flap of mucus membrane is now allowed to fall over the skin, and the excess cut off. Proceed in the same way until all are removed. Then insert into the rectum a long narrow piece of gauze with a small amount of vaseline on it, and pull out slowly till all margins of skin and mucus membrane are approximated. In a very few hours they will seal up. The gauze is removed after twelve hours. There are no sutures nor ligatures used.—E. F. GOTT, M. D., Charleston, W. Va.

Functions of the Liver

Snell and Rowntree are well known for their work in hepatic function. In the December issue of the *Ohio State Medical Journal* they summarize some of the recent work on this subject. They point out that the problem is a complex one and list no less than nine possible functions of the liver as follows:

1. Protein metabolism (deamidization and urea formation).
2. Carbohydrate metabolism (glycogenesis, regulation of blood sugar).
3. Fat metabolism.
4. Bile formation, and excretion (bile pigments, bile acids, cholesterol).
5. Excretion of dyes, (phenoltetrachlorophthalein, bromsulphalein, rose bengal).
6. Detoxification (oxidative reactions, conjugations).
7. Ferment production (proteolytic, diastatic, lipolytic).
8. Fibrinogen formation.
9. Effect on (a) coagulation time of blood; (b) fragility of erythrocytes.

It is obvious that no one test can portray to us the integrity of so many and varied functions. The authors feel very favorably toward the van den Bergh test which seems

to distinguish obstructive from hemolytic jaundice and moreover may be read quantitatively. It is a modification of the old Diazo reaction for typhoid formerly applied to urine.

The icterus index is rated second to the van den Bergh and is especially valuable in the detection of latent jaundice. The various dye tests depend upon the observation of their rate of disappearance from the blood stream. Bromsulphalein seems to be the most satisfactory dye for this purpose due to its lack of general and local reactions.

The determination of the bile salts has not been of clinical value to date although Aldrich has recently standardized the Pettenkofer reaction in such a way as to make it clinically applicable.

The authors point out that the simpler procedures such as the tests for bile in urine and feces, coagulation time of blood, etc., must not be overlooked.

The tests of most value are listed in the following order of importance:

Serum bilirubin (van den Bergh). 0.7 to 1.5 mg. for each 100 cc. of blood (indirect reaction).

Icterus index. A reading of less than 8 units.

Bile in urine, stools and duodenal contents.

Dye retention tests, (bromsulphalein, phenoltetrachlorophthalein). Should disappear from blood stream within one hour after intravenous injection.

Bile salts in blood and urine. About 6 mg. bile salts in each 100 cc. of blood.

Coagulation time of blood. Seven minutes or less.

Fragility of erythrocytes. Hemolysis in sodium chloride solutions from 0.32 to 0.42 per cent.

They summarize the general value of the tests in practice as follows:

1. In diagnosis they reveal whether or

not the liver is diseased; they reveal jaundice and its nature, obstructive or hemolytic; they show a terminal picture common to several pathologic processes, they aid in classifying hepatic diseases and are valuable in the differential diagnosis of ascites.

2. In prognosis they reveal the degree of hepatic insufficiency to some extent and they are valuable in foretelling the course of the disease in some instances.

3. In treatment they afford some therapeutic indications; they indicate the favorable time for operation in cases of jaundice, and they tend to individualization in the treatment of hepatic diseases.

—W. M. SHEPPE.
Wheeling Clinic.

Cleft Palate

One out of every 2,400 babies is born with a cleft palate or a cleft in the lip known as a harelip. Since the cause of this pitiable deformity is not known, it cannot be prevented. It has been found possible, however, to correct the condition by skilful surgical operation.

Such an operation should be performed in a hospital by a competent surgeon. The best time to operate is when the baby is between 6 and 18 months old. It is important to close the palate before the child begins to speak. One of the most pathetic effects of the cleft palate is the defective articulation it causes.

Aside from the physical defects, the psychologic effect of the deformity must be considered by parents. Society unconsciously avoids the person with cleft palate because of his unpleasant appearance and manner. By no fault of his own the child is handicapped socially as well as physically and may become morbid and introspective.

If the palate is properly closed by an operation, if care is taken in speech training and if the teeth are cared for, results of treatment in cases of cleft palate are most gratifying, according to Dr. Shelton Horsley, Jr., who tells of his experience in *Hygeia* for February.

TUBERCULOSIS ABSTRACTS

Septic Infections of the Lungs

Septic infections of the lungs and bronchi are often mistakenly diagnosed as tuberculosis. Their course is very variable, but they are usually progressive, chronic, damaging, debilitating, distressing and, not infrequently, fatal. Bronchiectasis is not an uncommon condition. These infections are characterized by chronic cough; expectoration profuse and foul smelling in the late stages; dyspnea; pain in the chest and, after the disease is well established, weakness and loss of weight. Pleurisy is less common. The lesion is usually basal (in contrast to tuberculosis, in which early lesion is generally apical).

The most troublesome of them can be traced back, sometimes many years, to pertussis, influenza or broncho-pneumonia, or to sinus infections, tonsillitis or bronchitis. Perhaps broncho-pneumonia is the essential factor. Bad teeth, tonsils and mouth conditions generally are fairly constant factors, likely causal. Certain spirichetes and fusiform bacilli found in the mouth seem to be among the specific causes.

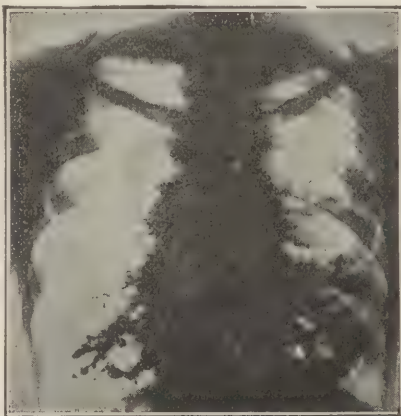
Bronchiectatic cavities are not well shown by the ordinary X-ray plate, but iodized oil, placed in the trachea, coats the walls of cavities, if emptied of secretions, and brings the outlines out sharply.

Rest in bed and drainage by posture or perhaps by the bronchoscope are useful in the early stages. Sincere spirochetes are implicated, neo-salvarsan has been used and successes reported. For the intermediate stage, collapse of the lung by pneumothorax, phrenicotomy or thoracoplasty should be considered. The late stages call for

desperate treatment, such as destruction of the diseased lobe by cautery.—*Septic Infections of Lungs and Bronchi*, David A. Stewart, *Can. Med. Assn. Jour.*, 1927, XVII.

Syphilis and Tuberculosis

Authenticated syphilis of the lung is rare. Habliston and McLean, reviewing the literature on syphilis of the lung, conclude that the frequency with which the condition is diagnosed varies with what each individual observer considers sufficient evidence to justify his diagnosis. Osler, for example, reported the condition diagnosed on autopsy 12 times in 2,800 autopsies. Watkins (in 1921) found 169 cases among 6,500 examined by the X-ray, while Ashbury found only 4 cases in 10,000 radiographic examinations.



Bronchiectatic cavities revealed by X-ray and iodized oil. Patient, age 27, was weak and miserable and weighed 80 pounds. Condition dates back to age 5. (Courtesy D. A. Stewart.)

But syphilis and pulmonary tuberculosis frequently co-exist among certain classes of patients. The authors studied 659 cases with 125 autopsies at the Baltimore City Hospital and found co-existence of the two diseases in 14.2 per cent of their cases. Latent syphilis has little effect on the course of pulmonary tuberculosis, but syphilis as an active disease has a decidedly unfavorable influence on the course of pulmonary tuberculosis. Antisyphilitic treatment was effective without untoward influence on the tuberculous disease. In the authors' cases of pulmonary tuberculosis associated with active syphilis and receiving antisyphilitic treatment, there was a decline of 14.5% in the mortality and an increase of 9.8% improvement.—*The Coexistence of Syphilis and Pulmonary Tuberculosis*, Chas. C. Habliston and W. Oliver McLean, Jr., *Amer. Rev. of Tuber.*, July, 1927.

THE WEST VIRGINIA MEDICAL JOURNAL

JAMES R. BLOSS, *Editor-in-Chief* - - - - - Huntington

...ASSOCIATE EDITORS...

J. HOWARD ANDERSON
Marytown

WALTER E. VEST
Huntington

C. A. RAY
Charleston

HARRY M. HALL
Wheeling

THE JOURNAL issued on the first of each month. Entered as second-class matter, January 1, 1926. Acceptants for mailing at special rate of postage provided for in Section 1103, Act of October 3, 1917. Authorized July 24, 1919.

Subscription to Members.....	\$2.00 Per Year
Subscription to Non-Members.....	\$3.50 Per Year
Single Copies.....	50 Cents

OFFICERS

President:
C. A. RAY Charleston

First Vice-President:
D. G. PRESTON Lewisburg

Second Vice-President:
E. L. ARMBRECHT Wheeling

Third Vice-President:
W. C. SWANN Huntington

Executive Secretary:
MR. JOE W. SAVAGE Charleston

Treasurer:
T. MAXFIELD BARBER Charleston

Delegates to A. M. A.:
JAMES R. BLOSS (1927) Huntington
HENRI P. LINSZ (1927-28) Wheeling

Alternates:
A. A. SHAWKEY (1927) Charleston
HARRY M. HALL (1927-28) Wheeling

COUNCILLORS

Chairman of the Council for 1928:
R. H. DUNN South Charleston

First District:
H. R. JOHNSON (1-year term) Fairmont
C. G. MORGAN (2-year term) Moundsville

Second District:
C. H. MAXWELL (1-year term) Morgantown
C. H. HALL (2-year term) Elkins

Third District:
JOHN FOLK (1-year term) Bridgeport
I. D. COLE (2-year term) Clarksburg

Fourth District:
J. E. RADER (1-year term) Huntington
W. E. VEST (2-year term) Huntington

Fifth District:
J. HOWARD ANDERSON (1-year term) Marytown
H. G. STEELE (2-year term) Bluefield

Sixth District:
R. H. DUNN (1-year term) South Charleston
H. A. WALKUP (2-year term) Mt. Hope

¶ All original articles for THE JOURNAL must be made to it exclusively. Communications and items of general interest to the profession are invited from all parts of the state. Notices of deaths, removals from the state, changes of location, etc., are requested.

¶ Our readers are requested to send marked copies of local newspapers containing matters of interest to members of the medical profession. Name of sender should be given.

CONTRIBUTIONS TYPEWRITTEN

¶ Contract with present printer specifies all articles, communications, etc., MUST BE TYPED.

ADVERTISEMENTS

¶ Advertising forms will go to press not later than the tenth of each month. All advertisements must conform to the standard established by the Council of Pharmacy and Chemistry of the A. M. A.

WOMAN'S AUXILIARY

Mrs. R. V. Shanklin, Gary, President; Mrs. T. H. Harris, Parkersburg, vice-president; Mrs. W. C. Swann, Huntington, secretary; Mrs. W. D. Simmons, Slab Fork, treasurer.

Councillors

Mrs. C. G. Morgan, Moundsville, first district; Mrs. Ralph Maxwell, Morgantown, second district; Mrs. H. D. Price, Parkersburg, third district; Mrs. J. R. Bloss, Huntington, fourth district; Mrs. A. G. Rutherford, Welch, fifth district; Mrs. E. S. DePuy, Beckley, sixth district.

Delegates to Woman's Auxiliary of A. M. A.

Mrs. R. V. Shanklin, Gary; Mrs. B. S. Preston, Charleston. Alternates — Mrs. George Jeffers, Parkersburg; Mrs. W. B. Scherr, Morgantown.

STANDING COMMITTEES

Medical Defense Committee

R. H. Dunn, South Charleston, chairman; C. G. Morgan, Moundsville; I. D. Cole, Clarksburg.

Committee on Scientific Work

R. U. Drinkard, Wheeling, chairman; O. B. Biern, Wheeling; A. H. Hoge, Bluefield.

Public Policy and Legislative Committee

R. A. Ireland, Charleston, chairman; R. H. Walker, Charleston; James McClung, Richwood; C. R. Ogden, Clarksburg, D. A. MacGregor, Wheeling.

Committee on Medical Education

John N. Simpson, Morgantown, chairman; W. T. Henshaw, Charleston; W. S. Fulton, Wheeling.

Committee on Professional Relations

John R. Shultz, Charleston, chairman, (1-year term); A. G. Rutherford, Welch, (2-year term); W. R. Goff, Parkersburg, (3-year term); Hugh G. Nicholson, Charleston, (4-year term); E. P. Smith, Fairmont, (5-year term)

Workman's Compensation Committee

W. A. MacMillan, Charleston, chairman; J. Ross Hunter, Charleston; R. H. Walker, Charleston.

Committee on Public Health

David Littlejohn, Charleston, chairman; John Thames, Charleston; Will McLain, Wheeling.

Surgical Section


Wade H. St. Clair, Bluefield, chairman; John E. Cannaday, Charleston, secretary.

Eye, Ear, Nose and Throat Section


E. C. Hartman, Parkersburg, chairman; I. D. Cole, Clarksburg, secretary.

Hospital Association Officers

H. F. Spillers, Wheeling, president; L. W. Lawson, Logan, president-elect; J. E. Wilson, Clarksburg, first vice-president; R. A. Ireland, Charleston, second vice-president; J. S. Turk, Wheeling, treasurer.



EDITORIALS



The Iron is Hot

Only one month is left for the secretaries of component societies to report dues of their membership to the office of the executive secretary. After April 1, 1928, all members of the association whose dues have not been reported to the state secretary are placed on the delinquent list and their affiliation with their county society, the West Virginia State Medical Association and the American Medical Association is brought to an end until their dues are paid up.

On March 1, 1927, only 342 members had paid their dues into the association. This year has already far outstripped the mark set up in 1927 and approximately one-half of the total membership has already been reported. Let's keep on while the iron is hot and have a 99 per cent paid up membership to report at the Fairmont meeting. -C. A. R.

Medical Defense

In regard to medical defense, the constitution and by-laws of the West Virginia State Medical Association set forth that "any member desiring to avail himself of the provision of this article shall proceed as follows: He is to obtain a written statement from the secretary of his official local society that he is a member of that society and in good standing, and has paid his dues and assessments before April 1 of the current year, in accordance with section 4 of this chapter. Also he shall send a copy of the bill of complaint against him and any other facts pertaining to the litigation to the executive secretary, who, in turn, will refer it to the chairman of the council for further action and investigation. In all cases, the defendant is to act in conjunction with the executive committee."

It is further provided that "The executive committee of the council at its discretion, shall apportion funds from the medical

defense fund, not to exceed three hundred (\$300.00) dollars, for necessary legal services in any one case; it shall furnish all medical expert services and pay other necessary expenses that it deems advisable; provided that nothing in this understanding between the state association and its members shall conflict with united action in the defense of a member by officials of any corporation organized for this specific purpose with which the member may be connected."

These features are explained at this time, and especially the features in the opening paragraph, because of the careless manner in which a few members of the association have recently applied for medical defense. It has been the experience of the committee on medical defense that approximately four-fifths of the claims received are improperly sent in. Remember that the time to apply for medical defense is when a suit is filed and not when it is terminated.

The medical defense fund is your fund and it is set aside for the sole purpose of protecting members of the association against whom malpractice suits are brought. The committee keeps this point firmly established in their minds. But the committee justly feels that it cannot pay out your money to defend any doctor who makes no report of a malpractice suit against him until it has gone through the courts. The medical defense fund is always held in readiness to help a member in distress, but it cannot be handed out as carelessly as some of the claims against it have been handed in.

—C.A.R.

No Conflict Necessary

Public health agencies are free to use methods "to excite the interest of the citizen" that for obvious reasons cannot be used by practitioners. Sometimes these methods are so out of harmony with the ideals of medical practice that they receive

little cooperation or support from practitioners. Sometimes the methods are adopted without any consideration for the interests of the practitioner, and sometimes he resents what seems to him to be unnecessary interference with his private practice. Sometimes he is compelled to defend his diagnosis and opinion against a contradictory diagnosis and opinion advanced by a school nurse, public health nurse, or in a consultation clinic. It isn't just a question of who may be right.

Few practitioners in these days are so firmly established with their clientele that they are immune to criticism, and the confidence of their patients is sometimes shaken by an opinion given by some one of these agencies after an inspection or a cursory examination. Certainly the medical profession is under obligation to cooperate with public health agencies in every reasonable manner in the efforts to control and prevent disease. Certainly the important service given by the medical profession in the administration of public health regulations justifies careful consideration of the rights and privileges of practitioners when any program is prepared by public health agencies. Organized medicine can restore and maintain harmony between these two great bodies of medical men, can safeguard the interests of practitioners and give to the public health service every cooperation required. The county societies are the local units of organized medicine and they should not only take an active interest in public health matters but they should sponsor every campaign for immunization.

Since the county society represents the best medical men in the county and usually includes the county health officer—if he is a live one—there is no reason for any conflict of interests.—*The Journal of the Kansas Medical Society.*

Case Reports Needed

There are two departments of the *Journal* that have suffered considerably during the past few months because of a lack of material. These are the departments devoted to case reports and to abstracts of scientific

papers. The publication board of the *Journal* will be pleased to receive abstracts and case reports from members of the association and all such papers received will be given immediate consideration.

Hospital superintendents and component society secretaries are especially urged to make the above announcement at one of their coming meetings. —C.A.R.

The Fairmont Program

In this issue of the *Journal* there appears an incomplete draft of the program arranged by the Scientific Committee for the next meeting of the West Virginia State Medical Association in Fairmont on May 22, 23 and 24, 1928. As the proposed program is a radical departure from previous programs, a word of explanation is thought advisable.

The committee, as a whole, felt that previous programs were entirely too long and that anyone attempting to hear all the papers would only become confused and would therefore miss the good points in the various papers.

Further, the committee felt that the same men appearing on the program year after year would tend to discourage interest. Therefore "fixtures" were abolished. This applies to both men from within and without the state.

And lastly, the committee felt, that as West Virginia was more or less isolated from the large medical centers, that the average man would get more from the meeting if we could secure the services of teachers from these centers, who could in their more capable manner, keep us abreast of the progress in medicine. The discussion of the papers to be read is limited to men residing within the state and the sectional meetings are given almost entirely to state men. This, we believe, will offer a well balanced program.

The committee will welcome your comments on this program and the pages of the *Journal* are open to those who care to praise or condemn.

DR. R. U. DRINKARD,
DR. O. B. BIERN,
DR. ALBERT H. HOGE,
Scientific Committee.



NEWS NOTES OF COMPONENT SOCIETIES



Central West Virginia

The January 27 meeting of the Central West Virginia Medical Society was held in the offices of Dr. McNeill, D.D.S., Sutton, and was featured with a scientific paper on "The Social Evil," presented by Dr. M. T. Morrison of Sutton, president of the society. Following Dr. Morrison's paper, the members present engaged in a round-table discussion on "The Treatment of Vincent's Angina."

The meeting opened with the 1927 report of the secretary followed by the election of Dr. E. T. W. Hall and Dr. W. H. Green of Weston as affiliates and of Dr. J. L. Pifer of Buckhannon as an honorary member. Dr. C. C. Carson of Gassaway was elected to membership as a transfer from Kanawha county. Dr. M. T. Morrison and Dr. S. S. Hall were elected to attend the joint conference of the public health council and the West Virginia State Medical Association which was held in Charleston on February 9. Dr. Carson was selected as an alternate delegate to the state convention in Fairmont next May.

The next meeting of the Central West Virginia society will be held in Richwood on April 18 with Dr. C. F. Fisher of Richwood in charge of the arrangements and program. It is understood that an auxiliary society will be organized at the April meeting. After the election as tuberculosis speakers of Dr. Morrison, Dr. Hall of Buckhannon, Dr. Fisher and Dr. Carson, the meeting adjourned.

S. S. HALL, *Secretary.*

Lewis County

At the reorganization meeting of the Lewis County Medical Society held at Weston on December 13, Dr. M. D. Cure was elected as president for 1928, Dr. George

Snyder as vice president, and Dr. O. L. Hudkins as secretary-treasurer. Dr. Hudkins and Dr. Guy R. Post were elected delegates to the state convention at Fairmont and the alternates selected were Dr. E. T. W. Hall and Dr. A. F. Lawson. Dr. G. M. Burton was elected for a three-year term as censor.

Those who attended the December 13 meeting were Dr. E. T. W. Hall, Dr. W. H. Greene, Dr. George Snyder, Dr. O. L. Hudkins, Dr. A. F. Lawson, Dr. G. M. Burton, Dr. M. D. Cure, and Dr. Guy R. Post, all of Weston. Visitors were Dr. H. B. Neagle of Weston, Lewis county health officer, and Dr. S. S. Hall of Buckhannon.

The Lewis County Medical Society met on February 14 at the Memorial Library building, Weston, at which time the principal business was a report of a committee on a new fee bill for the society. The report of this committee, readjusting all fees to the changed conditions in Lewis county brought about by the system of hard roads, was adopted. The committee was composed of Dr. Snyder, chairman, and Dr. Hudkins and Dr. Post.

At the February 14 meeting, Dr. Harry B. Neagle was taken in as a new member of the society.

O. L. HUDKINS, *Secretary.*

Logan County

Dr. R. R. Vaughn of Dehue was elected president of the Logan County Medical Society at its last meeting held in Logan on the evening of January 18. Dr. Vaughn succeeded Dr. H. H. Farley of Logan. Other officers elected at the January 18 meeting were Dr. J. O. Hill of Logan as vice president and Dr. P. B. Wingfield of Logan as secretary-treasurer.

P. B. WINGFIELD, *Secretary.*

Raleigh County

Members and wives of members of the Raleigh County Medical society were entertained with a dinner given at the Beckley Hotel, Beckley, on the evening of January 26 by Dr. and Mrs. George W. Johnson. Dr. Johnson is president of the Raleigh society.

The guest of the evening was Dr. R. D. Roller of Charleston, who spoke on "Public Health in the Schools." Dr. A. H. Grigg of Beckley talked on "The Present Status of Sera and Vaccines." During the meeting, Dr. Johnson was given authority to appoint two representatives to attend the joint meeting of the public health council and the West Virginia Medical Association at Charleston, which was held on February 9.

WALTER D. SIMMONS, *Secretary*.

Mercer County

The Mercer County Medical Society held its regular monthly meeting at the Mercer Hotel, Princeton, on Thursday, December 22.

During a business meeting that followed, Dr. W. H. Wallingford of Princeton was elected president for the coming year. Dr. Wallingford gave a short talk, requesting the cooperation of each member of the society and assuring the members that he would use his best efforts to make 1928 a banner year for the Mercer County Medical society. Other officers elected were Dr. E. W. Horton of Bluefield, first vice president, Dr. H. G. Steele of Bluefield, secretary, Dr. H. H. Haggart of Bluefield, treasurer, Dr. Carl Smith of Princeton and Dr. David Lepper of Bluefield, censors, and Dr. A. H. Hoge and Dr. M. N. Mastin, delegates to the state convention. Alternates selected were Dr. Wallingford and Dr. T. E. Vass of Bluefield. The professional relations committee, composed of Drs. Hoge, Rogers and Wallingford, was re-elected.

In accepting his re-election as secretary, Dr. Steele made the following recommendations:

First: That a Tri-County Medical society comprising McDowell, Tazewell and Mercer counties be formed.

Second: That a joint meeting in each of these counties be held once each year.

Third: That outside, high-type, professional men from some of the big cities be invited to attend the meetings of the Mercer society and read papers at three of the meetings during the year.

Fourth: That the old hospital clinic plan be revived and that one clinic at each hospital be held throughout the year.

Fifth: That four to six of the programs of the Mercer society be put on by members of the society.

Sixth: That a scientific program be given at the annual picnic meeting.

During the December 22 meeting, Dr. T. E. Vass and Dr. Carl Smith each reported some interesting cases which were discussed by several of the doctors present. A letter was read from Dr. C. A. Ray, president of the state association, accepting an invitation to attend one of the future Mercer society meetings. The secretary was instructed to invite Dr. Ray to attend one of the joint meetings of the McDowell and Mercer County societies during the coming summer.

The following members and one visitor were present, Drs. F. F. Holroyd, A. D. Wood, W. H. Wallingford, Carl Smith, John Bird, Sam Holroyd, M. N. Mastin, J. R. Vermillion, H. G. Steele, David Lepper, Uriah Vermillion, E. W. Horton, A. H. Hoge, C. M. Scott, T. E. Vass, Ira M. Smith, A. E. Amick and Mr. Frank Holroyd.

H. G. STEELE, *Secretary*.

Marion County

Dr. Chesney N. Ramage of Fairmont has been elected president of the Marion Medical Society to succeed Dr. L. N. Yost. The new secretary of the Marion society is Dr. G. H. Traugh, who has taken the place of Dr. Carl J. Carter of Fairmont.

The members of the association in and near Fairmont are very enthusiastic over the coming state convention which will be held in the Y. M. C. A. building on May 21-24 inclusive. Plans are already under way for the annual banquet and ball, which will be given in the Fairmont Elk's home.

G. H. TRAUGH, *Secretary*.

Harrison County

The regular monthly meeting of the Harrison County Medical Society was held at St. Mary's Hospital at Clarksburg February 2 at 8:30 o'clock. Dr. J. E. Corbin, a former president, presided.

Dr. Eugene O. Chimene of Clarksburg, read a paper entitled "An Analysis of the Causes of Vomiting." Dr. Chimene handled his subject in a very capable manner. Dr. W. L. Thomason opened the discussion. His remarks were to the point and showed that he had given his subject no little thought. Others discussing Dr. Chimene's subject were Dr. H. H. Haynes and Dr. C. R. Ogden.

The Society at this meeting voted to have the February luncheon in the evening and to permit the ladies to be in attendance. This is a trial affair only. Heretofore the only ladies who have broken bread with us at these monthly luncheons have been our lady physicians.

In the year 1927 these luncheons were quite successful in Clarksburg. Attendance ranged from 25 to 40. Good food was served and at each luncheon a brief paper was read upon some subject of medical, but non-technical nature. Some of these subjects were historical. Two former judges of the local circuit court spoke at these luncheons upon topics of medicolegal interest.

B. S. BRAKE, *Secretary*.

Barbour-Randolph-Tucker

The Barbour-Randolph-Tucker County Medical Society met in Elkins at the Hotel Tygart on January 24, 1928, at 6 p. m. Supper was served and preceding the business session, the following program was taken up:

Anatomy of the Lung by Dr. E. M. Hamilton of Belington.

Physical Signs of the Lung by Dr. S. G. Moore of Elkins.

Laboratory Findings of the Lung by Dr. T. P. Haslam of Elkins.

The Child Chest by Dr. O. L. Perry of Elkins.

Pulmonary Tuberculosis by Dr. C. H. Hall of Elkins.

Surgery of the Chest by Dr. B. I. Golden of Elkins.

These separate topics were discussed by each of the men assigned in an interesting way and at the conclusion, a general discussion was opened by Dr. W. W. Golden.

A short business session followed during which Dr. W. E. Whiteside of Parsons was selected to represent the B. R. T. society at the joint meeting of the state health council and the West Virginia State Medical Association which was held in Charleston on February 9.

Those present at the meeting were Dr. W. E. Whiteside, Dr. Guy Michael, Dr. C. H. Hall, Dr. W. W. Golden, Dr. B. I. Golden, Dr. E. M. Hamilton, Dr. O. L. Perry, Dr. E. R. MacIntosh and Dr. J. C. Irons. Visitors included Dr. W. J. Laurie of Toronto, Canada, and Dr. T. P. Haslam of the Davis Memorial hospital, Elkins.

J. C. IRONS, *Secretary*.

G.-H.-H.-M. Society

Dr. J. O. Lantz of Hartmansville was elected president of the Grant-Hardy-Hampshire and Mineral Counties Medical Society at their last meeting to succeed Dr. M. H. Maxwell of Keyser. Dr. Lantz has already entered upon his new duties for 1928 and is assisted by the newly elected secretary, Dr. T. C. Giffin of Keyser.

Other officers elected by the G-H-H-M society were Dr. G. S. Gochenour of Moorefield, first vice president, Dr. James F. Easton of Romney, second vice president, Dr. M. F. Wright of Burlington, third vice president, and Dr. W. T. Highberger of Maysville, fourth vice president. Dr. J. H. Wolverton of Piedmont and Dr. T. C. Giffin were chosen as delegates to the state convention at Fairmont next May.

The next meeting of the society will be held in Keyser during the month of April at the call of the president.

T. C. GIFFIN, *Secretary*.

Kanawha County

Dr. E. Bennette Henson and Dr. J. E. Cannaday of the staff of the Charleston General Hospital conducted a symposium on fractures at the February 7 meeting of the Kanawha Medical Society, held in the assembly room of the Kanawha Hotel. Practically all of the members present took part in the discussion that followed.

Four new members were taken in at this meeting. They were Dr. E. H. Boyer of Charleston, Dr. Leo Mynes of Charleston, Dr. J. I. Markel of Ward and Dr. W. F. Work of Charleston. Dr. G. C. Robertson was elected vice president of the society to fill the vacancy caused by the resignation of Dr. J. A. Arbuckle, who recently moved to Richmond, Ky.

Dr. Robert King Buford and Dr. H. L. Robertson of Charleston conducted a symposium on goiter at the second February meeting of the society which was held at the Hotel Kanawha on February 21. A large attendance turned out for both of these meetings and the members evidenced an enthusiastic interest in the scientific papers. The Kanawha Medical Society expects to have a 100 per cent paid up membership to report to the Fairmont convention next May.

J. R. SHULTZ, *Secretary*.

Ohio County

The Ohio County Medical Society held a special memorial meeting at the Wheeling Elks Club on the evening of January 19 at which time a resolution in tribute to the late Dr. Gregory Ackerman was adopted. Dr. Ackerman, one of the best known doctors in Wheeling, succumbed on January 16. The resolution follows:

Again we are called upon to bear tribute and to bow our heads in sorrow because of the passing of a beloved member, Dr. Gregory Ackerman, the dean of surgeons of our commonwealth.

Our county society for more than two score years was to Dr. Ackerman an institution and seldom was his seat vacant at its gatherings. Certainly by his passing we all suffer a grievous loss.

By study and by practice he was a supreme example of those principles and high standards in the art of surgery. He had no patience with an idler and gave hours, even in his closing months, and

when death itself was asking audience, to the study of diseases and the saving and prolonging of human life and the discussion of plans to thwart the Grim Reaper, not so much relating to his own ailment as to the distress of others.

The memory of his valiant ministry in medicine and his abiding faith in great conquests in the field of our endeavor, his encouragement to younger struggling students of our profession, are living and pulsing things that will never die.

Whether in the operating room translating modern thought and ingenuity into original or emulative skill, or in the discussion of some paper out of the richness of personal experience in the halls of our county society, our lamented brother was always at home, giving his best, an untiring service and devotion to his brother man.

The broad field of Dr. Ackerman's activities is better for his living and our profession of medicine the stronger and cleaner for a contact with his life and teaching. Certainly he made this society the recipient of his intellectual bounty—a legacy rich indeed.

Resolved, That this appreciation be spread upon the minutes of our society, published in the State Medical Journal and a copy forwarded to the bereaved family.

The January 27 meeting of the Ohio County society was held in the Elks Club at Wheeling with Dr. R. L. Sanders of Memphis, Tenn., as the principal speaker. His subject was "Factors Influencing the Morbidity in Cases of Surgical Lesions of the Stomach and Duodenum," and was illustrated with lantern slides. The discussion was opened by Dr. F. LeMoyne Hupp and Dr. W. S. Fulton of Wheeling.

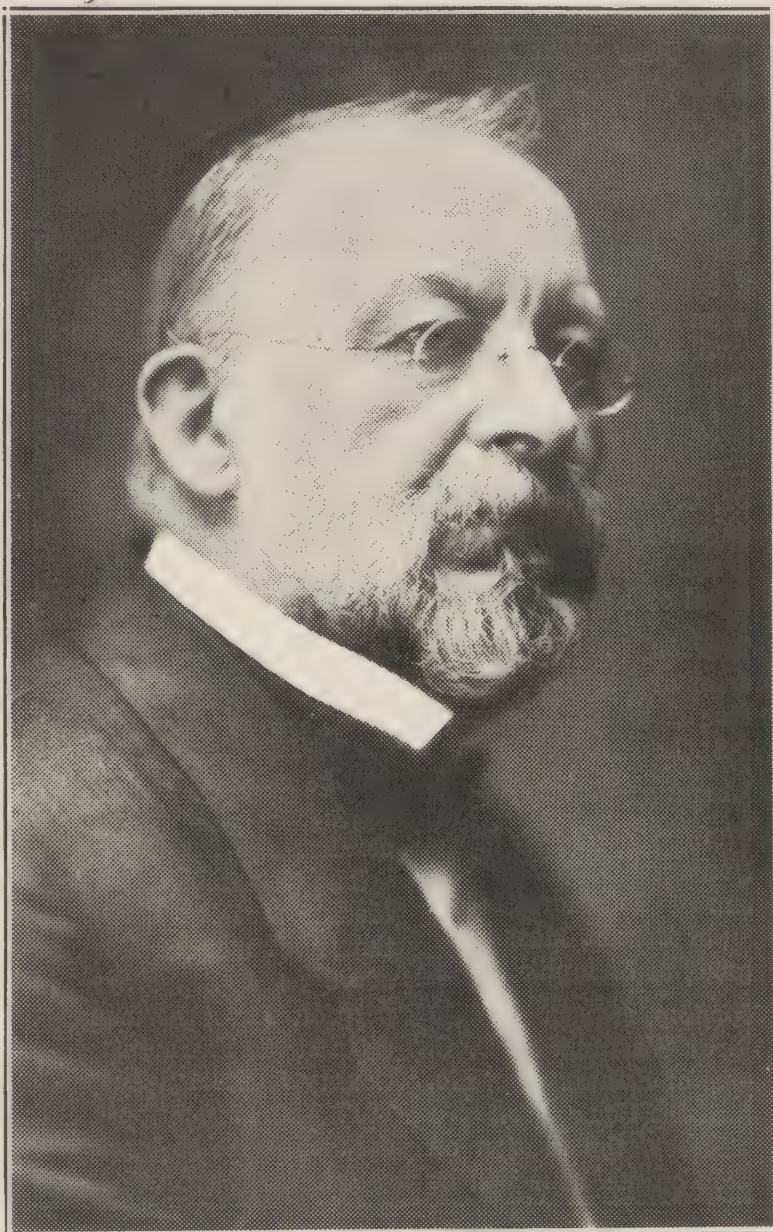
The meeting was presided over by Dr. J. W. Gilmore, president, and was followed by a buffet luncheon.

Dr. George Wilson of the neurological service of the University of Pennsylvania, Philadelphia, was the principal speaker at the February 10 meeting of the Ohio County Medical Society held in the Elks Club at Wheeling. The subject of his paper was "The Diagnosis and Treatment of Neurosyphilis with Special Reference to the Use of Malaria."

The discussion of Dr. Wilson's paper was opened by Dr. R. U. Drinkard and Dr. W. M. Sheppe of Wheeling and a number of the other members present took part. Dr. J. W. Gilmore of Wheeling, president of the society, presided at the session.

H. W. BOND, *Secretary*.

Gregory C. Ackerman, M. D.



Who died during the month of January at his home in Wheeling. Dr. Ackerman was one of the most prominent doctors of Ohio county and was an honorary member of the West Virginia State Medical Association

GENERAL NEWS

Fairmont Program

The program for the Sixty First Annual Meeting of the West Virginia State Medical Association to be held in Fairmont on May 21-24 inclusive has been practically completed by the committee on scientific work, according to a recent announcement by Dr. R. U. Drinkard of Wheeling, chairman. The council and house of delegates will meet on the afternoon and evening of May 21 and the general sessions will start on the following morning. The program thus far outlined is as follows:

Tuesday Morning, May 22

Call to order by Dr. C. A. Ray, president.

Invocation and address of welcome.

Public Health address.

Dr. Howard Lilienthal of New York City.

Tuesday Afternoon, May 22

Dr. William B. Porter of Roanoke, Va.

Dean Lewis of Johns Hopkins, Baltimore.

Dr. J. J. Singer of St. Louis, Mo.

Wednesday Morning, May 23

Sectional meetings.

Wednesday Afternoon, May 23

Dr. Curtis Burnham of Baltimore, Md.

Dr. Elliott P. Joslin of Boston, Mass.

Dr. Willis C. Campbell of Memphis, Tenn.

Thursday Morning, May 24

Dr. James Mitchell of Washington, D. C.

Dr. William W. Duke of Kansas City, Mo.

Dr. John R. Caulk of St. Louis, Mo.

The presidential address, the oration on surgery and the oration on medicine will be delivered on the evening of Tuesday, May 22. Dr. Albert H. Freiberg of Cincinnati will give the oration on surgery and Dr. Harry M. Hall of Wheeling the oration on medicine. The annual banquet and ball will be held on Wednesday evening, May 23.

The subjects of the various papers and the state doctors to discuss the papers will be announced at a later date.

Wayne Organizes

The Wayne County Medical Society, the newest component organization of the West Virginia State Medical Association, was officially ushered into active membership at the McCallister Hotel, Kenova, on the evening of February 16. Dr. C. A. Ray, president of the state association, attended the organization meeting and gave an interesting and instructive talk on the objects and advantages of a county society. Mr. Joe W. Savage, state secretary, attended the meeting with Dr. Ray and also made a short talk.

The new officers who will guide the Wayne society were elected as follows: Dr. W. F. Bruns of Ceredo, president; Dr. A. G. Wilkinson of Wayne, first vice president; Dr. Roscoe Stotts of Kenova, second vice president, and Dr. J. W. Ferguson, secretary-treasurer. Dr. Glen Johnson of Wayne, Dr. L. B. Dean of Kenova and Dr. J. W. Rife of Kenova were selected as censors. The delegates to the state convention will be Dr. B. D. Garrett of Kenova and Dr. Ferguson. Dr. Roscoe Stotts was elected as alternate delegate.

The organization of the Wayne County Medical Society was affected upon the authority of a letter from Dr. Ray which will serve as a temporary charter until their petition for a permanent charter is acted upon at the Fairmont convention. A Wayne County Medical Society was in existence in 1917 and 1918 but its charter was surrendered because of inaccessible roads and unsatisfactory means of transportation between points within the county.

The members of the new Wayne society include Dr. Wilkinson and Dr. Johnson of Wayne, Dr. Dean, Dr. Stotts, Dr. Rife, Dr. Ferguson and Dr. Garrett of Kenova and Dr. Bruns and Dr. R. V. Shirley of Ceredo. Visitors attending the organization meeting were Dr. Ray, Dr. W. A. Thornhill and Dr. Spencer of Charleston, and Mr. Savage.

Proposed Legislation

Elimination of the three state miners' hospitals in West Virginia, increasing the personnel of the nurse's examining board to include three physicians in active practice, more efficient enforcement of the medical practice act, and more rigid requirements for the state board examination were some of the major problems brought up and discussed at the joint meeting of the state health council and the West Virginia State Medical Association held in the new capitol building, Charleston, on the evening of February 9. Two other matters also discussed were the Shepherd-Towner act and the midwife situation.

The meeting was presided over by Dr. H. G. Camper of Welch, president of the health council, while Dr. W. T. Henshaw, secretary of the council, acted as speaker. Dr. R. A. Ireland of Charleston, chairman of the committee on public policy and legislation, conducted the greater part of the argument for the association. Dr. Ireland was assisted by Dr. C. A. Ray, president of the association, and Dr. W. E. Vest and Dr. O. B. Biern of Huntington.

A motion to abolish the three state hospitals came late in the evening when the meeting was about to adjourn and was unanimously passed by the representatives of the two organizations. It was pointed out that the state hospitals had outlived their usefulness and that they were no longer needed in West Virginia.

In commenting upon the nurses examining board in this state, Dr. Ireland pointed out that it now consisted of three graduate nurses and two physicians. He stated that through their majority, the nurses could, if they saw fit, hold a club over the head of any hospital in the state that failed to meet with the board's requirements, and that as a result the nurses could virtually dictate to the hospitals in West Virginia. Dr. Ireland said that nothing of this nature had ever been attempted, but that he would like to see the nurses board consist of three physicians and two nurses to forestall any misunderstanding that might come up in

the future. A motion to that effect was unanimously passed.

In reply to a question put by Dr. Ireland, Dr. Henshaw said that with his present machinery, it was practically impossible to enforce the medical practice. Dr. Henshaw recommended that the next legislature be asked for an appropriation with which to employ the services of a full-time attorney with enforcement of the medical practice act as his only duty. Dr. Ray moved that such an appropriation be asked for, not to exceed \$10,000 annually, and this motion was passed.

Dr. R. H. Walker of Charleston brought up the matter of internship in connection with the state examination to practice medicine. He pointed out that the present statute does not require internship and held the opinion that if an internship was required it would considerably advance the medical status in West Virginia. After some discussion, a motion was passed which would require a minimum of one year's internship as a prerequisite for the state board examination.

The midwife situation was brought up and discussed, but no action was taken. It was pointed out that West Virginia was getting along better than most other states and that it would perhaps be better to allow the practice to continue as it now is. The discussion of the Shepherd-Towner act was brought to a close when Dr. Henshaw announced that it would die a natural death in 1929 and that it would not be renewed.

In practically all of the matters brought up for discussion, there was an agreement reached between the members of the state health council and the representatives of the West Virginia State Medical Association. It is understood that Dr. Ireland, representing the association, and Dr. Henshaw, representing the state health council, will work together at the 1929 legislature to secure passage of the measures and reforms agreed upon at the February 9 meeting.

Officials of both organizations believe that with a definite program already outlined, they will be able to accomplish much more by working together than they have in the

past, when they failed to get together on proposed legislation.

Among the members of the West Virginia State Medical Association who attended the joint meeting on February 9 were Dr. Ray, Dr. Ireland, Dr. W. S. Fulton of Wheeling, Dr. S. S. Hall of Buckhannon, Dr. J. G. Pettit of Hopemont, Dr. James McClung of Richwood, Dr. H. F. Spillers of Wheeling, Dr. Russell Kessell of Charleston, Dr. J. Ross Hunter of Charleston, Dr. W. E. Vest of Huntington, Dr. O. B. Biern of Huntington, and Dr. J. E. Rader of Huntington.

Council Passed

The notable success of many pharmaceutical products which have been accepted by the Council on Pharmacy and Chemistry of the American Medical Association for inclusion in "New and Nonofficial Remedies" recommends not only the plan itself, but the wisdom of the medical profession in selecting these reliable "Council Passed" remedies for daily use.

Among the medicinal chemicals now being widely used are such "Council Passed" products as Ephedrine Hydrochloride, Neocinchophen, Butyn, Metaphen, Butesin, Picrate, Anesthesin, Chlorazene, Amidopyrine, Procaine and Neutral Acriflavine, all of which are described in the recent edition of "New and Nonofficial Remedies."

These remedies are the result of research and clinical study. They have been announced in our pages and are worthy of further investigation on the part of our readers.

Hospital Convention

The 13th Annual Convention of the Catholic Hospital Association of the United States and Canada and the Second Annual Hospital Clinic Congress of North America will be held in the Cincinnati Music Hall, Cincinnati, Ohio, June 18th to 22nd, inclusive, 1928. The Fourth Annual Convention of the International Guild of Nurses will be held at the same time, in the same building, at night meetings.

This convention and congress will be one of the largest and most important hospital meetings of the year, and will comprise general scientific meetings, special clinics or demonstrations of hospital departments, and three hundred special commercial and educational exhibits. Outstanding authorities in medicine, surgery, pathology, nursing, dietetics and hospital administration, architecture and engineering will lecture and demonstrate in specially planned clinics representing the various departments of the modern hospital.

Joy Bean Quacks Jailed

Readers of this department of *The Journal* may remember that on July 16, 1927, there was published a brief article dealing with the issuance of a fraud-order against a quack, one Frank Beland of Cairo, Ill. Beland exploited a piece of aphrodisiac quackery under such trade names as "Joy Beans Laboratories" and "Beland Laboratories" selling a preparation that he called "Joy Beans." According to the government report, Joy Beans were put up by Eli Lily and Company, Beland himself having no medical, pharmaceutical or chemical training.

In his advertising literature, Beland, who is 60 years old, had claimed that, when he was 23 years old, he had a paralytic stroke and that Joy Beans had cured him. He asserted that he could run a foot race and that his medicine had brought back to him his youthful days, both sexually and physically. He described himself in his literature as looking as young today as when he was 25 years old. It was obvious at Beland's trial that these claims were false and, in fact, Beland's own attorney in his argument referred to him as an "old man." The government's case was presented by the district attorney, Mr. Harold G. Baker, who deserves special commendation for the way in which the matter was handled. Judge Fred L. Wham, after pointing out to Beland the serious nature of his offense, imposed a jail sentence of ninety days.—J. A. M. A.



PERSONALS

—Dean J. N. Simpson of the college of Medicine, West Virginia University, recently attended the conference on education conducted at Chicago by the American Medical Association.

—Post-Graduate courses of instruction will be given in diseases of the Eye, Ear, Nose and Throat at the Gill Memorial Eye, Ear, Nose and Throat Hospital, Roanoke, Virginia, on March 19-24. For particulars write to Dr. E. G. Gill, Roanoke, Virginia.

—Dr. R. D. Roller of Charleston was a recent visitor in Beckley, where he addressed the Raleigh County Medical society.

—Dr. W. H. Ennis, former health officer of Boone County, has moved to Knoxville, Tenn., to take up health work there.

—Dr. A. C. Lambert of South Charleston, who has been confined to his home for some time, has returned to assume his duties as roentgenologist at the Mountain State hospital.

—Dr. M. V. Godby and family of McKendree has been spending some time visiting friends in Charleston.

—Dr. Walter E. Vest of Huntington will attend the meeting of the American College of Physicians at New Orleans on March 5-9 inclusive. Dr. C. A. Ray, president of the state association, is also expected to attend.

—Dr. M. N. Mastin of Goodwill, W. Va., former president of the Mercer County Medical society, has moved temporarily to Baltimore where he is taking post graduate work.

—Dr. J. Bankhead Banks of Charleston is recovering from an operation performed at the Charleston General Hospital in February.

—Dr. L. W. Lawson of Logan has recently moved his offices to the Hatfield-

Lawson hospital of which he is the head.

—Dr. Frederick T. Ford of Washington, D. C., arrived in West Virginia on February 15 to take charge of the division of rural sanitation in the state health department as a substitute for Dr. David Littlejohn, who has been granted a leave of absence.

Physician Paintings

Great paintings showing physicians in action are described in the February issue of Hygeia, the health magazine.

"Laennec examining a phthisical before his pupils" shows the great inventor of the stethoscope demonstrating his instrument to students. The painting is by a modern artist, Theobald Chartran, and hangs in the Sorbonne, Paris.

Lavoisier, the founder of modern chemistry, and Berthollet, a famous physician and chemist, are shown at work in their laboratory in another painting by Chartran in the Sorbonne.

The third painting also by Chartran is that of Ambroise Parie, sometimes referred to as the father of French surgery, operating on a wounded soldier at the siege of Metz.

A physician is also a principal figure in the "Death of an Artist," by the Slav artist Kostandi. This picture hangs in the Tretiakov Gallery in Moscow.

It is interesting to observe that many physicians are also artists. Recent exhibitions of paintings and sculpture by modern American physicians have attracted much attention in the art world. Physician-artists transfer their knowledge of the human body and spirit to canvas and marble with profound comprehension, says Miss Ely.

Eye Sight Convention

The re-election of Lawrence W. Wallace of Washington as president of the Eye Sight Conservation Council of America has been announced, following the annual meeting of the organization. Guy A. Henry of White Plains, N. Y., was again chosen as general

director, Bailey B. Burritt was re-elected as vice president and William R. Wall of New York was re-elected as treasurer.

During the coming year, the council expects to work with the Better Business clubs throughout the country to stamp out fraudulent traffic of concerns offering to fit glasses by mail. The field secretary, Mr. Charles E. Southard, visited 79 cities in 1927 and delivered 650 addresses.

The Hebrew Physician

"The Hebrew Physician", (HaRofeh Ho-Ivree), the only medical journal published outside of Palestine which is written in Hebrew, has just made its initial appearance.

This journal is under the editorship of Dr. Moses Einhorn and Dr. A. Goldenstein. It contains articles on general medical subjects and has a special section devoted to new Hebrew medical terminology. All physicians who are interested in this journal are requested to communicate with the editors, addressing them care "The Hebrew Physician," 286 West 86th St., New York City.

W. Va. Diseases in 1927

The report of communicable diseases made last week by the West Virginia State Health Department to the surgeon general of the United States Public Service for the year 1927 showed a marked decline in cases of tuberculosis, typhoid and diphtheria, and an increase in smallpox, infantile paralysis and scarlet fever.

In West Virginia last year 706 new cases of tuberculosis were reported as against 1020 in 1926, while diphtheria dropped from 1289 in 1926 to 958, and typhoid fever from 1309 in 1926 to 1072 last year. The increase in smallpox from 309 in 1926 to 1099 last year, authorities claim, was due to neglect or ignorance since vaccination has been proven preventive.

Poliomyelitis made its appearance in 33 counties of the state last year with a total of 229 cases, as against 10 reported the previous year. While the mortality rate in this disease is not so high, the disabling, crippling effects are much to be feared.

Ohio and Cabell counties reported the greatest number of cases, greater Wheeling having fifty cases with five deaths resulting.

Scarlet fever also showed an increase of nearly three hundred cases in 1927 over the reports of the previous year. Among the so-called "children's diseases" the report showed some interesting figures. Whooping cough decreased only two cases while measles shows a drop of 9390 cases and chickenpox an increase of 103 cases.

The 1927 figures for these diseases are, whooping cough 2617, measles 4933 and chickenpox 2040. Measles which is said to come in cycles of three years, reached a high peak in 1926 when 14323 cases were reported in the state.

Diseases reported last year from the 55 counties were: Chickenpox 2040; diphtheria, 958; hookworm, 9; hydrophobia, 1; influenza, 1303; measles, 4933; meningitis, 26; ophthalmia, 3; poliomyelitis, 229; scarlet fever, 2367; smallpox, 1099; trachoma, 7; tuberculosis, 706; typhoid fever, 1072; whooping cough, 2617.

Deafness Cure Quack

Undoubtedly a goodly number of West Virginians have fallen prey to the recent advertising activity of the W. O. Coffee company of Davenport, Iowa, in this state. No less than one month ago, W. O. Coffee, M. D., handed out through his Chicago agents a number of full page advertisements for several of the largest daily papers in West Virginia in which he asked for "15,000 sufferers from deafness."

It will no doubt be interesting to the members of the association to know that Coffee died on October 14, 1927; although his demise in no way affected the standing or status of his company. This company was organized in 1926 and the profits filched from the purses of "sufferers from deafness" have apparently been handsome enough to warrant the continuance of the firm in spite of the handicap imposed by Coffee's death.

At the request of the *Journal* management, the bureau of investigation of the American Medical Association has just fur-

nished the following information in regard to Coffee and his cure for deafness:

Probably no quack in the "deafness cure" business has exploited his mail-order "treatments" more widely than has William O. Coffee, M. D., who holds forth at Davenport, Iowa. Coffee, although a medical graduate and licentiate, sells his "treatments" by mail to persons whom he has never examined or even seen, and the presumption is that, like other mail-order quacks, he sends the same treatment to everyone who orders it, regardless of the purchaser's individual condition.

According to official records, Coffee was born in 1859 and was graduated from the Missouri Medical College, St. Louis, in 1881. The medical directories for forty years past showed that in 1886 Coffee was at Blandville, Ky.; in 1890 at Louisville, Ky., and Xenia, Ohio; in 1893 at Janesville, Wis. The directories from 1900 to 1918 show him as practicing at Des Moines, Iowa. He seems to have moved around 1928 to Davenport, Iowa, where he has since been located.

While practicing in Des Moines, he widely advertised his mail-order "eye cure" business. Finally his activities were exposed by Samuel Hopkins Adams in "The Great American Fraud" series that ran originally in *Collier's* and has been reprinted in book form by the American Medical Association.

After this exposure of his methods, Coffee's business seems to have waned and in October, 1915 items appeared in Des Moines newspapers, stating that Coffee had filed a petition in voluntary bankruptcy. His heaviest creditor according to the report, was Arthur Capper, owner of the *Topeka Capital*, which had an advertising claim aggregating many hundreds of dollars. Following his financial upset in Des Moines, Coffee for some time carried on an itinerant practice, visiting various towns in Illinois a day or two at a time. After moving to Davenport, Iowa, he made extravagant claims for himself as an "eye specialist" in the local newspapers.

For the past few years Coffee has been widely exploiting his mail-order "cure" for

deafness, carrying full-page advertisements in such papers as are not averse to sharing in the profits of quackery.

The *Cleveland Press* early in 1927 carried a Coffee advertisement which resulted in protests from some of its readers. The *Press* then started an investigation of its own and came to the decision that it was "imperative in the interests of *Press* readers" that it close its columns in the future to advertising of the character of W. O. Coffee's. The *Daily Star* of Long Island City, N. Y., was another paper that carried a Coffee advertisement and that, after the facts were brought to its attention, gave instructions to its advertising department not to insert Coffee's advertising in the future. The same thing is true of the *Toledo Blade* and the *Schenectady Gazette*.

Dr. Samuel S. Adams

Dr. Samuel Shugert Adams, head of the department of theory and practice of medicine at Georgetown University and an alumnus of West Virginia University, died on February 12 at his home in Washington, D. C. Dr. Adams was the last surviving member of arts and science graduating class of 1875 at the state university and received his master's degree there three years later. He was 75 years of age at the time of his death.

Dr. Adams received his degree of M. D. at Georgetown in 1879 and in 1898 he was placed at the head of the department of theory and practice of medicine. He served as an attending physician at the Children's Hospital in Washington and at the Georgetown University Hospital. He was born in Washington on July 12, 1953.

Funeral Expenses

"Funeral expenses are relatively higher among low-income groups than among the well-to-do," says a report of the Advisory Committee on Burial Survey. "The costs in the United States have risen until now they absorb a major part of the small estates." Doctors generally cheerfully render unre-

quited services for months and years, and are content that insurance shall go to needy widows and orphans; but it is gall and wormwood to them to see hundreds of dollars paid unnecessarily to undertakers for a few hours of their time, when the doctors have not been paid anything, and will be called again on the same terms as soon as widow or child falls ill. It is said that a poor man gives larger tips than a rich one, because the poor man doesn't want the waiter to know he is poor, and the rich man doesn't want to let it out that he is rich. Convince your patients that poor folks pay more for their funerals than rich ones and the cost of dying will be greatly reduced.—*Southern Medicine.*

Book Reviews

The fifth edition of *Physical Diagnosis* by Rose of Little Rock, Arkansas, which we have read with great interest, is truly modern in many respects. More than half the space is devoted to diagnosis of heart and lung diseases. Symptomatology is dealt with in detail and the physics of symptoms explained. This latter feature is especially to be commended because of its impressiveness.

Other pathological conditions are treated in much the same manner. The book is well printed, on good paper and easy to read.

Published by M. V. Mosby Company, Missouri. Price \$10.00. —C.A.R.

Rheumatic Diseases

A conference on rheumatic diseases is to be held at Bath, England, on Thursday and Friday, May 10th and 11th, 1928. Sir George Newman, Chief Medical Officer of the British Ministry of Health, has kindly consented to act as president of the conference. There will be three sessions: (1) Social Aspects, presided over by Lord Dawson of Pennsylvania, physician to H. M. King George; (2) Causation, presided over by Sir Humphry Rolleston, (Regius Professor of Physic, University of Cambridge), and (3) Treatment presided over by Sir E.

Farquaher Buzzard, (Regius Professor of Medicine, University of Oxford). The local Hon. Medical Secretary is Dr. Vincent Coates, 10, Circus, Bath, England.

Vaccination Shields

A warning against the use of any sort of vaccination shield or dressing, has been issued by the Surgeon General of the United States Public Health Service, Dr. Hugh S. Cumming, who recommends that no covering be applied to a vaccination against smallpox. The full text of the statement follows:

The Public Health Service has conducted studies extending over several years which show that shields or dressings applied to a vaccination are a cause of severe "takes" and delay healing. The investigations have also shown that such dressings produce conditions in the wound which are favorable for the development of tetanus, or lockjaw, which is an occasional complication of vaccination. Lockjaw, it is pointed out, is caused by accidental contamination of the vaccination with tetanus germs which live in soil, dust, dirt, etc.

The surgeon general advises that no covering should be applied to the vaccination. When this advice is observed and a small, proper type of insertion has been employed it is pointed out that the vaccinated spot will usually retain its natural covering, the skin itself, and in most cases, develop a dry scab without having become an open sore at any time.

Should an open sore develop, as occasionally happens through injury, an antiseptic dressing may be applied for a few days. Several layers of gauze pinned to the inside of a loose-fitting sleeve is perhaps best for this purpose. If the dressing is attached to the arm it should be large and the adhesive strips applied loosely and as far from the vaccinated site as possible.—*U. S. Daily.*

Tokyo Hospital Rated

State recognition of the high rank of Saint Luke's International Hospital School for Nurses, Tsukiji, Tokyo, was officially confirmed by the Imperial Japanese Depart-

ment of Education by the publication under date of November 24, 1927, of an official decree conferring college (semmon gakko) rank on the institution, the course of study being for three years, and one year extra for those taking special higher training.

The school is the first institution for nurses in Japan to be thus recognized, no girls being admitted without a diploma from a girls' high school. Saint Luke's International Hospital is under the management of the American Episcopal Mission, its head being Dr. R. B. Teusler, surgeon to the American Embassy.

Prescribing Digitalis

It is reasonable to suppose that a drug in use for some hundreds of years and in most of that time having been discussed in a controversial manner as well as being used in many different ways, would present many difficulties in the way of arriving at some universal understanding. Since the investigations of Eggleston and Hatcher in America and Cushny and Mackenzie abroad, some definite conclusions may be accepted in relation to the dosage and strength of preparations.

At the present time we have on the market so many prescriptions that one is confused when prescribing digitalis. It appears to us that this should not be so. With increasing macological action of the drug and its therapeutic indications, some standard preparation could be prescribed from a good pharmacy. Our impression at this time is that one must follow his prescription to the drug store to see what the patient receives in the way of the tincture when written as such.

The method of labeling preparations of digitalis as per cat unit has, in our opinion, been sufficiently worked out to be accepted as the best present method of standardization of the strength of the drug. The adoption of this by manufacturers will come much sooner through the demand of physicians for certain markings on each preparation, as the date of manufacture and the unit strength. Such preparations are now being made and can be obtained in the open market.

This may be hastened by wider knowledge of the action of the drug—its therapeutic indications and its dosage determined by the strength of the preparation. Thus will be created a demand for preparations stamped with the date of manufacture and strength of same and the manufacturer may accept a standardization and not advertise his preparation as more potent than that of his competitors due to a better method of manufacture or such other claims as he may set forth.—*Wisconsin Medical Journal*.

Laboratory Service

*Statement by the
Council on Medical Education and Hospitals
of the American Medical Association*

During the last decade there has been much discussion in medical and laboratory journals and particularly on the platform of medical and laboratory conventions, regarding the status of the clinical laboratories of the country. Especially it was regretted that the practice of clinical pathology, regarded as one of the medical specialties, had fallen into disrepute. The fact was lamented that the laboratory work had fallen into the hands of lay technicians and become the toy of persons who had a purely commercial point of view and very little training for the work. Much disgust and quite a strong note of despair was sounded by those few members of the medical profession who had championed the cause of clinical pathology and had adopted that specialty as a life work.

Many letters were received at the office of the American Medical Association from practitioners of pathology and leaders in medicine, regretting the drift toward lay commercialism, and urging that something be done to counteract it. What to do about it was a question. Organizations of chemists were interested because some of their members ran laboratories. Likewise organizations of clinical pathologists, bacteriologists, and of the medical profession were equally interested. Some of these organizations working alone undertook to investigate and to standardize the practice of clinical pathology, hoping to check the drift of

that practice into the hands of technicians and restore it to its rightful place as a medical specialty. The efforts of those organizations working single-handed were of little or no avail except to emphasize the enormity of the task and the necessity for cooperation.

Cooperation Effected in 1923—The necessary cooperation of the laboratory and medical organizations was brought about in 1923 at the annual meeting of the American Medical Association in San Francisco. At that time, delegates sent by the American Chemical Society and the American Association of Pathologists and Bacteriologists separately petitioned the American Medical Association to establish some supervision over clinical laboratories. This led to the appointment of three committees representing the American Chemical Society, the American Association of Pathologists and Bacteriologists, and the Council on Medical Education and Hospitals. At a joint meeting of these committees in Chicago early in 1924, after much deliberation, certain basic principles underlying sound laboratory service were agreed upon which stressed specially a qualified bona fide director as the prime essential. The joint committee agreed that the work could best be conducted by the Council on Medical Education and Hospitals.

The first steps were: (a) to secure a complete list of laboratories in the country; (b) the preparation of a schedule of essentials in an approved clinical laboratory, and (c) the preparation of a questionnaire by which the essential facts regarding each laboratory could be obtained. Each of these measures was carried out with the advice and cooperation of fifty or more clinicians and others expert in laboratory work, including the committeemen of the above-named organizations, and by the officers of the American Society of Clinical Pathologists which very early showed an interest and from which the Council has received a hearty cooperation.

After being revised and adopted by all parties interested, the questionnaire was mailed to all the laboratories of the country and a most hearty response was received.

A complete report of the survey, "Essentials of an Approved Clinical Laboratory," and a preliminary list of laboratories which appeared to be fully complying with those "essentials", were published in the hospital number of the *Journal* for April 3, 1926. The facts as published were submitted to the House of Delegates of the American Medical Association at the Dallas session in 1926 and approved by that body.

To assist in giving as fair consideration as possible to each application for approval, a strong committee of laboratory experts was formed in every state or section of the country. Those committees aggregate one hundred and twenty individuals representing, as equally as possible, the cooperating organizations and hence the interests of the laboratory profession. Under the direction of the council, each committeeman makes his investigation and renders his report or advice independently of other committeemen in the same district.

At the present time, of the three hundred and fourteen laboratories that have reported, one hundred and fifty-one, after careful investigation, have been placed on the approved list and other applications for approval are constantly being received.

The council lends all possible assistance to laboratories whereby they may become eligible for admission to the accepted list. Every laboratory that makes a report and signifies a desire to conform to the requirements, is informed in regard to any deficiencies. The spirit of this movement all the way through is constructive. Anyone who knows the condition of the laboratory field at the time this survey was begun, would not expect very telling or spectacular results to be shown by this time; nevertheless, there are ample reasons for believing that actual improvements are being made: (1) a number of laboratories formerly run by technicians and only nominally under "medical" directors, have come under the ownership and actual control of clinical pathologists of high professional standing and ripe experience; (2) a number of laboratories under the control of technicians have gone out of business; (3) the "essentials" have been published repeatedly and thus brought to

the attention of all persons working in the field of clinical pathology; (4) there is an increased demand for pathologists to man the clinical laboratories of the country; (5) the director of the Mayo Foundation says that the salaries offered the pathological graduates of the Foundation are double those offered to other graduates of the Foundation; (6) the feeling of unsteadiness indicated in the discussions of a few years ago has subsided to a considerable degree, and there is more hopeful attitude on the part of the clinical pathologists themselves.

Future Outlook—The movement is still in its beginning, but a good start has been made. To what extent doctors have actually discontinued sending specimens to unapproved laboratories and are sending them to approved laboratories is not known. The educational results, however, are becoming increasingly evident. In order to secure the best analyses for the benefit of their patients as well as to best conserve the interests of the medical profession, physicians should refuse to have their work done at laboratories conducted under the direction of non-medical individuals. Much depends, also, on the continued hearty support of the various organizations and individuals who operate in the laboratory field. That this is already assured is indicated by the promptness with which laboratories are filling out and returning the form that has recently been mailed out by the Council on Medical Education and Hospitals for a complete and needed resurvey of laboratory service. The resulting data from this survey will be published for the benefit of all. Of course, any laboratories that are not yet on the list, will be promptly considered for approval, if they express such a desire.

Iodine Sales Limited

A restriction, limiting to 50 gallons, the amount of iodine which may be sold to one individual without review by prohibition enforcement authorities was announced February 9 by the commissioner of prohibition, Dr. J. M. Doran.

The action, Dr. Doran explained orally, was in response to appeals from the trade and represents an effort to correct certain conditions respecting dealing in U. S. P. tincture of iodine which the commissioner and the trade agreed were harmful.

The restriction was promulgated in the form of a ruling by the department of the treasury decision 22. It follows in full text:

Effective March 1, 1928, orders for U. S. P. tincture of iodine prepared with specially denatured alcohol formula 25 or 25-A in excess of one 50 gallon barrel or the equivalent thereof in bulk per month to any one individual or company must before being filled by the manufacturer be submitted to the administrator for approval.

Sales may be made in one gallon containers or less without being submitted to the administrator for approval.—*U. S. Daily*.

New Advertisers

New advertisers appearing for the first time in this issue of *The Journal* are the Chicago and Great Western Railroad, Chestnut Lodge Sanatorium, Stewart Home Training School and the Bancroft School.

Leslie Dana Medal

The fourth award of the Leslie Dana Medal, presented annually through the Missouri Association for the Blind to the person selected from the nominations received by the National Society for the Prevention of Blindness, will take place during the 1928 meeting of the American Academy of Ophthalmology and Otolaryngology, in St. Louis, Missouri.

Nominations will be received by the National Society for the Prevention of Blindness, together with detailed information prompting the nomination, until the 15th day of May, 1928. The medical profession and ophthalmological societies are invited to submit names of persons deemed worthy of this honor to the national society, under

the conditions set forth in the deed of gift, as follows:

(a) Long meritorious service for the conservation of vision in the prevention and cure of diseases dangerous to eyesight.

(b) Research and instructions in ophthalmology and allied subjects.

(c) Social service for the control of eye diseases.

(d) Special discoveries in the domain of general science or medicine of exceptional importance in conservation of vision.

The recipient of the first medal awarded (1925) was Dr. Edward Jackson of Denver. The second annual award (1926) was to the late Miss Louisa Lee Schuyler of New York City, and the third award (1927) was to Dr. Lucien Howe, until recently of Buffalo, now of Cambridge.

SCHOOLS OF CHIROPRACTIC AND NATUROPATHY IN THE UNITED STATES *

PERSONAL inspections have recently been made of all schools existing in the United States for the teaching of particular methods of treating human diseases. While a complete report of all information secured would hardly be justified, a brief resume of conditions found in schools of chiropractic and naturopathy will be of interest to both physicians and laymen.

Schools of Chiropractic—Chiropractic is said to have originated in 1895 with D. D. Palmer, a magnetic healer of Davenport, Iowa, and to have been "developed" by his son B. J. It is in reality the older osteopathic concept very slightly modified and renamed. It was the enlarging of the osteopathic field and the lengthening of the osteopathic curriculum that gave chiropractic its opportunity, and the latter's rapid development has been due largely to the fact that it offered a short-cut to osteopathy.

According to this theory disease is due to vertebral subluxations which cause a pinching of spinal nerves between bones. This pinching interferes with the flow of "innate intelligence" or vital energy to the body tissues. The spinal "adjustment" alone renews that flow and restores health.

Chiropractic has had, during its brief career of thirty-two years, about one hundred

and fifty schools. Forty of these are still active, many of them offering courses at night only and having a mere handful of students; more than half of the forty are so poorly housed and so inadequately financed that their future is problematic. B. J. Palmer, the "developer" of the cult, recently said: "According to our records, forty-eight chiropractic schools have closed their doors during the past two years."

An entrance requirement of four years of high school study or its equivalent is claimed by the best of these forty schools; it is probable, however, that not one of them is enforcing the requirement. Mature age, business experience, ability to carry the chiropractic courses, or any convenient achievement is declared to be a satisfactory equivalent. A few schools give ridiculously short and easy high school quiz courses and certificates, for which a special tuition fee is charged; this course in one of the best chiropractic schools² occupies two evenings weekly for six months. But fifty per cent or more of these schools do not even claim to require a high school education.

The courses offered in the majority of these schools run through "three school-years of six months each." They are poorly chosen, poorly arranged, and very poorly outlined. The student may begin on any school day of the year and finish on the same day of the eighteenth month thereafter. There are no adequate records of amount or quality of work done. Going to school is a matter of "doing time," and the student is given his

* Inspections were made during the summer and fall of 1927, by representatives of the Council on Medical Education and Hospitals of the American Medical Association. The schools included in these inspections are the schools of chiropody, chiropractic, naturopathy, optometry, osteopathy and physical therapy, as well as a large number of miscellaneous institutions.

doctor's degree as soon as the time limit expires. Legislation has forced a few schools to lengthen their courses to twenty-four or twenty-seven months. When this is done, the school usually shortens its working day to three or four hours as compensation, and holds out to the student his ability to spend the remainder of his time earning his expenses. Also, in almost any twenty-four or twenty-seven month school, a student may graduate at the end of eighteen months if he declares his intention to practice in a state requiring only that amount of study. A few schools require less than eighteen months, and one of the most widely known gives only a home-study course that may be finished within three months.

The equipment invariably found in these schools consists of a few adjusting tables, students chairs, and desks. Some have turned to physical therapy or naturopathy and installed a varying amount of electrical apparatus. A very few have X-ray machines, used (except in one instance³) in "spino-graphy". About eight of the forty schools have small chemistry laboratories, with equipment for the very simplest experiments only. Two or three have dissection laboratories. None of the forty schools have laboratories for physics, physiology, physiological chemistry, bacteriology, histology, embryology, or pathology. Courses in these important laboratory subjects are either given by the didactic method or omitted altogether.

The clinics are not adequate for training in the recognition of even the most common disease. There is no adequate apparatus for the diagnosis of such diseases. The treatment procedures taught and practiced do not include the therapeutic measures of demonstrated value, and so the patient is left practically without either diagnosis or treatment. There are no hospitals to which patients in need of hospitalization are referred, and none in which students may study the progress of cases.

The faculties of these forty schools are made up of men of very poor educational qualifications. While a very few are both educated and shrewd, and an occasional doctor of osteopathy or even of medicine may be found among them, the great majority are

not trained in any of the "medical sciences", the non-medical sciences, or the liberal arts. They are frankly out of sympathy with the organized medical and public health interests, and are openly antagonistic to many of the most universally recognized facts and procedures of civilized life.⁴ They circulate, by word of mouth and through the school literature, greatly misleading statements about the chiropractic "profession," ambiguous testimonials concerning the cure of incurables, and wild claims about the schools themselves which a most superficial investigation proves to be without foundation in fact.⁵

Schools of Naturopathy—While a venerable old age is claimed for naturopathy, its development has really been more recent than that of chiropractic; its chief exponent, Benedict Lust of New York, claims that he organized the "parent school" in 1896, but even so ancient an origin as that is improbable.

The cult seems to have no basic idea but to be rather a nature-cure hodge-podge with a decided antipathy to drugs. In fact, naturopathy has developed in part as an effort to broaden the scope of chiropractic. There are about five schools of naturopathy and all of them teach chiropractic. Several of the chiropractic schools teach naturopathy. Probably fifty or even seventy-five per cent of the practicing naturopaths have been recruited from the ranks of chiropractic, and the two cults have always been on the friendliest terms.⁶

Entrance requirements are said to include four years of high school study or its equivalent, but none of the schools of naturopathy really enforce this rule. Records are not kept; the student's word is taken in the matter, and if he is so thoughtless as to confess that he lacks the high school requirement the matter is either forgotten or patched up with as little embarrassment as possible. One school offers a night course in which the deficiency may be made up (extra tuition being charged for this service), but admits that the requirement has never been enforced.

The courses run through twenty-four or thirty-six months, with a short school day

and an evident carelessness regarding attendance. It is probably that only one school has day classes. These institutions show a marked tendency to have students attending two or more "schools" simultaneously. One school, for example, which claims to operate under about twenty different names, offers "a liberal reduction to students taking four or more courses (schools) at the same time." Another tried to enroll the inspector in two "schools" at once when fifty per cent of the sessions of one conflicted with the sessions of the other. One school counts attendance in each class twice—once for naturopathy and once for chiropractic—and so claims to pile up 6000 class-hours (thirty-minute periods) of study, thus "qualifying" under the new Florida law; this school gives every student two diplomas, and many students three or more, each diploma bearing a different name for the school. No outline of the courses offered is published by any of the schools of naturopathy.

The subjects include sysmotherapy, glucokinesis, zone therapy, physicultopathy, astrological diagnosis, practical sphincterology, phrenological physiology, spectrochrome therapy, cateopathy, physiotherapy, electrotherapy, mechanotherapy, heliotherapy, tension-therapy, naprapathy, neuropathy, physical culture, and many others.

The equipment in these schools differs little (if at all) from that found in schools of chiropractic, except that a small amount of electrical apparatus is usually found, and adjusting tables are not quite so much in evidence. A small chemistry laboratory is usual; that of the "parent school" in New York has room for two or possibly three students, but has not sufficient equipment for so large a number to perform the same experiments at the same time. There are no laboratories for physics, physiology, physiological chemistry, anatomy, bacteriology, histology, embryology, or pathology.

The clinics are even less adequate than those of the chiropractic schools. No school of naturopathy has a hospital associated. The therapeutic procedures include chiropractic, osteopathy, hydrotherapy, electrotherapy, diet, and a wide range of so-called "natural methods."

The faculties of these schools are composed of untrained men, many of whom have been recruited from the schools of chiropractic. Their educational qualifications are so like those of teachers of chiropractic that no further statement is necessary. That such instructors should train students in the proper use of so wide a variety of therapeutic measures, and do it within the short time allotted, is obviously impossible.

General Discussion—In such a brief report many matters of interest must be entirely omitted and many others no more than mentioned; elaboration, though a constant temptation, is one which brevity forbids. But to one who is familiar with the elaborate equipment and curriculum found necessary to proper training in the science and art of healing today, the most impressive thing about these naturopathic and chiropractic schools is not what they are, but what they are not. A few statements from this point of view will properly close the report itself and also form an appropriate prelude to the list of schools following.

1. Of the fifty active schools listed, a few are mere "branches" rather than separately existing institutions, and these fifty constitute less than one-third of the number formerly existing.

2. All but a mere handful of these fifty existing schools are so poorly housed and so inadequately financed that their continuation is problematic.

3. Very few of these schools have even one adequately trained teacher on the faculty, and there are probably less than five expert all-time teachers in the entire lot of fifty institutions.

4. Not one of these schools actually enforces a matriculation requirement of even five minutes of high school study.

5. Not one of the fifty schools gives so much as one worthy laboratory course or has one worthily equipped laboratory.

6. Not one of these schools conducts a clinic in which a wide variety of the common diseases may be studied.

7. There is not one clinic equipped with the trained personnel or the scientific apparatus for the clinical diagnosis of a variety of the common diseases, nor having a labora-

tory equipped for checking such clinical diagnoses.

8. There is not one clinic equipped for the proper treatment of patients suffering from such diseases.

9. There is not one of these schools whose students or whose faculty may enjoy the privilege of practice or even of observation in any worthy hospital.

10. There is not one of these schools that does not proceed on the basis of unproved theory, ignoring the lack of endorsement by all worthy educational institutions.

11. There is not one of these schools that does not ignore or even avowedly oppose the scientific point of view and the facts of medical science accepted by the authorities of the entire civilized world.

12. There is not one of these schools that does not owe its existence to the fact that it

offers a short cut to the practice of medicine.

1. Article: "The Great Undertow."

2. National College of Chiropractic, Chicago.

3. The Pasadena College of Chiropractic reports that its students are taught X-ray therapeutics.

4. For example: vaccination, typhoid immunization, specific medication, diphtheria antitoxin, quarantine, focal infection, germ theory of disease, etc., etc.

5. Thirteen of these schools have made affidavits to the American College of Chiropractors that the curriculum includes 3528 forty-five-minute hours of work, and on the basis of these affidavits have been rated by this "college" as "class A schools" and awarded "diplomas of honor." Allowing for ten-minute intervals between classes and five school days per week, (considering that not a single holiday is allowed during the eighteen months of the course) this schedule would require more than eight hours of actual attendance daily, a program which no school of any nature would attempt to follow. The American College of Chiropractors admits that none of these schools were inspected prior to their being rated and that none of their claims have been investigated since.

6. The chiropractor may easily become a naturopath by taking a three-month "post-graduate" course in one of the naturopathic schools.

RELATIONSHIP OF THE COMPENSATION DEPARTMENT TO THE HOSPITALS OF THE STATE

By C. L. HEABERLIN

Workman's Compensation Commissioner,

Charleston, W. Va.

I am glad of this opportunity to discuss with you this subject of relationship. If we would define or determine this relationship in a fixed degree, we must show the dependency of one upon the other in the joining of ability and resources to accomplish the best possible results in the consummation of the many problems that are vital to the hospitals and our department alike.

There can be no question but that vital relationship does exist and should be recognized, and in order to realize the greatest benefits by helpful cooperation, the aims and objects of each should be understood by the other.

In order to prove our desire for helpful cooperation, I will point to a few of our recent efforts to bring this about:

Careful Survey of State Hospitals—Upon assuming the duties of commissioner of the Workmens Compensation Fund on July 1,

1927, I found that there had not been any well-defined effort on the part of the compensation department to determine the standing and equipment of the various hospitals of the state with reference to their ability to successfully care for injured employees, to whom the workmen's compensation department is responsible for disability.

I immediately determined that a well and carefully prepared hospital survey should be made of the entire state, and after careful consideration of various parties, who were well equipped by past experience and training to do this work, I selected Dr. H. F. Spillers, former superintendent of the Ohio Valley Hospital, and arranged with him to secure and compile this carefully and hastily prepared information.

A lengthy questionnaire was prepared, the object of which was to furnish our department with detailed information as to the hospital's general condition, its building, its clinical equipment, its general manage-

* Presented at the Second Annual Meeting of the Hospital Association of West Virginia at Charleston on Dec. 19, 1927.

ment, and medical and surgical staff. In pursuing this work, Dr. Spillers visited personally every hospital of the state and was instructed to carry as far as possible a feeling of cooperation and to have the hospitals understand that it was the desire of the workmen's compensation department to cooperate to the end that those being treated by the hospitals would have the very best results possible to obtain.

This survey has been completed, and there is now on file in the medical department of the workmen's compensation office complete data and information as respects each hospital in the state. I believe that 90 per cent of the misunderstandings between the hospitals and the workmen's compensation department as their relations existed heretofore is due to a lack of understanding and acquaintance with the difficulties to be met by each, and we hope that our efforts along this line will be reciprocated by the hospitals to the end that the injured employees, the hospitals and the workmen's compensation fund will be benefited materially thereby.

Establishment of a Well-Equipped Medical Department—Following the hospital survey, I realized that our own medical department was inadequate and set about immediately to improve this condition. Dr. R. H. Walker, who is chief of the medical department, had been doing splendid work considering his handicap by reason of the fact that no clinical equipment had been furnished to enable him to make careful and effective examinations of injured employees.

We now have a well organized medical department, equipped with first class X-ray machines and other clinical devices necessary to an intelligent and positive diagnosis of the physical condition or impairment of the injured claimants. We are now employing a full-time medical examiner as assistant to Dr. Walker, a full-time and well experienced X-ray technician, as well as other necessary clerical force for this department in order that it may properly and effectively function.

Compilation of Intelligent Rules and Regulations Governing Medical, Surgical and

Hospital Treatment of Claimants—Following the reorganization and equipment of our medical department, there was at once apparent a woeful lack of understanding and cooperation with the various doctors and surgeons of the state, who treat compensation cases, in regard to said treatment, fees, rules and regulations governing same.

I requested, through Dr. Walker, a meeting of the state medical association or their representative physicians to discuss ways and means in regard to these matters. Following that request, a conference was held with a number of the leading physicians representing the state medical association, which meeting discussed in detail pro and con the various problems under consideration.

As a result of this meeting, a committee of doctors was appointed for the purpose of working out a well-defined system of rules and a schedule of fees to be agreed upon by this committee and myself as commissioner. After considerable time spent, we formulated what we believe is an equitable and just set of rules and regulations that have now been promulgated and are in effect officially, as the rules and regulations, also fees, that the workmen's compensation commissioner will adhere to as a basis in dealing with the physicians and surgeons of the state. This schedule was agreed to, as indicated in the pamphlet, and is recommended by the various physicians who had a part in its compilation.

I wish to take this opportunity of expressing to those doctors who faithfully worked in this connection and rendered service both to their profession and to the workmen's compensation department in their intelligent assistance and cooperation in compiling this work.

Amendments or changes in this pamphlet, if they are found later to be essential, will be considered, but until such time as it is amended officially, our department will not deviate from the rules and regulations contained therein.

Upon the completion of this work, we mailed copies to the various compensation departments of other states, as well as a

number of the leading insurance companies doing similar business, and requested in exchange a copy of their rules and regulations, also invited their criticism and opinion of our schedule. It is encouraging indeed to say that out of some forty or fifty, we have had replies from probably twenty that our work compares favorably with the most modern thought in other states, and is far superior to a great majority.

Experience of the Department with Traumatic Injuries—The experience of the department with traumatic injuries clearly indicates that our loss ratio has been entirely too heavy, and the loss of time from injuries is entirely out of proportion in its length of duration to what it should be if careful and painstaking treatment is given to the injured man. In other words, the end results obtained on the average, I regret to say, are very poor and can be and must be materially improved, thereby benefiting from a humanitarian standpoint the injured employee by returning him as early as possible to his regular employment, relieving as far as is possible any permanent or fixed physical impairment, and at the same time, reducing the necessary costs to the workmen's compensation fund on account of unnecessary loss of time and physical impairment.

Our records show many cases of patients leaving hospitals with vicious unions, necessitating as much as two hundred weeks disability, which could have been reduced to fifty weeks, if the reduction and treatment of the fracture had been given the medical skill and attention that it deserved.

Our X-ray machine makes it possible for us to determine these matters in a positive and fixed degree to a much greater extent than heretofore. I could recite to you a number of specific instances, naming the claimant and the hospital, but I shall not go into these cases in detail, but shall content myself with giving you one concrete example.

An injured employee was sent to a hospital with a broken femur. An open reduction was made by the surgeon who applied a metal plate on which he used three

screws, two on one side of the break and one on the other. The wound healed nicely, the man was discharged from the hospital before firm union of the bone had been realized. He came in to our department some eight or ten months later with a united fracture. The X-ray picture shows clearly that the three-screw plate operated as a hinge rather than as a rigid brace. In this case, it is necessary to return this man to a hospital and have the plate removed, the ends of these bones prepared in an attempt to make sound union, which may or may not be accomplished at this time. If it cannot be, then he is physically impaired for life and the responsibility for this life impairment, to my mind, rests on the surgeon who did this work. He had the technical knowledge and ability to make this incision, prevent infection and secure the healing of the wound, but lacked the common sense to know that a plate of this kind would prevent the displacement of this reduction as it was intended that plates should do.

I want to take this opportunity to assure the doctors and surgeons of the state that our department will appreciate their cooperation and honest effort to the end that the injured employees, whose proper treatment is after all the primary object of both our department and the hospitals and doctors, receive the very best attention possible and that they leave the care of the hospitals and doctors as nearly physically whole as it is possible to do.

I want to further assure you that we desire to be absolutely fair in our rulings and interpretations and are willing to go more than half way in our effort for helpful cooperation and understanding.

Allow me to take this opportunity of expressing my appreciation for this invitation to discuss with you this vital subject of cooperation, and I extend to each of you a personal invitation to visit the workmen's compensation department offices, especially the medical department, at any time, and we shall assure you of our interest and shall appreciate any advice or suggestions that you feel should be considered.

WOMAN'S AUXILIARY

Kanawha Reception

Newly elected officers of the Kanawha Medical Society and the Woman's Auxiliary of the society were honored at the annual reception which was held at the Shawnee Club rooms, Charleston, on the evening of January 16. The guests were received by Mrs. B. S. Preston, Mrs. M. I. Mendeloff, Mrs. J. R. Shultz, Mrs. R. J. Ford, Mrs. T. M. Barber, Mrs. R. E. Woodall, Mrs. V. T. Churchman, Jr., Dr. W. W. Point, Dr. R. H. Dunn and Dr. J. R. Shultz. Mrs. W. A. Thornhill presided at the punch bowl.

The dance program was played by the WOBU orchestra. Supper was served at 11 o'clock. The affair was arranged by a committee composed of Mrs. R. K. Buford, Mrs. G. H. Barksdale, Mrs. I. P. Champe and Mrs. O. L. Aultz.

Among those present were: Dr. and Mrs. Ross Dodson, Dr. and Mrs. Robert K. Buford, Mrs. O. L. Aultz, Dr. and Mrs. Maxfield Barber, Dr. and Mrs. I. P. Champe, Mrs. C. E. Copeland, Dr. and Mrs. V. T. Churchman, Dr. and Mrs. M. L. Dillon, Dr. and Mrs. R. H. Dunn, Dr. and Mrs. Ralph Ford, Dr. and Mrs. H. R. Glass, Dr. and Mrs. E. Fred Gott, Mrs. P. A. Haley, Dr. and Mrs. E. B. Henson, Dr. and Mrs. E. R. Hatfield, Dr. and Mrs. Ray Kessel, Dr. and Mrs. M. I. Mendeloff, Mrs. Charles S. Ohley, Dr. and Mrs. B. S. Preston, Miss Betty Preston, Dr. and Mrs. Lawrence Petty, Dr. and Mrs. W. W. Point, Dr. and Mrs. C. A. Ray, Dr. and Mrs. H. L. Robertson, Dr. and Mrs. G. A. Rigrish, Dr. and Mrs. W. F. Shirkey, Jr., Dr. and Mrs. J. R. Shultz, Dr. and Mrs. J. A. Sharp, Dr. A. C. Vandine, Miss Vandine, Dr. and Mrs. R. E. Woodall, Mr. and Mrs. Joseph W. Savage, Dr. and Mrs. W. A. Thornhill.

Clarksburg Organizes

We welcome the new auxiliary of Clarksburg, which was organized on February 16 by Mrs. B. S. Preston of Charleston, president of the state auxiliary. A list of the

newly-elected officers of the Harrison county organization will be published in the March *Journal*.

Central West Virginia

It is understood that the ladies of Central West Virginia are contemplating the organization of a new auxiliary, which will probably take place at the next meeting of the Central West Virginia Medical Society at Richwood. This meeting will be held in April and several of the officers of the state association are expected to attend.

The State Meeting

It is not too early to be planning to attend the state meeting in Fairmont which will be held on May 22-24 inclusive. Arrangements have already been made for the meetings to be held in the Fairmont Y. M. C. A. building, where the association convention will take place. There has been some talk of the auxiliary putting on a scientific exhibit at the convention.

Mrs. A. T. McCormack of Louisville, Ky., the president of the Woman's Auxiliary to the Southern Medical Association, has accepted an invitation to speak at Fairmont.

Silver Tea Held

On Monday, December 5, 1927, Mrs. L. W. Cobun of Morgantown had a very pretty silver tea at her home on Grand street. Each Auxiliary member brought a guest. The sum of \$25 was raised and eight flannel night gowns and four blankets were purchased for four children at the Eastmont Sanatorium. In addition to this, \$10.00 was given to the Salvation Army for Christmas baskets for two needy families.

Mrs. Cobun's home was very beautifully decorated with Christmas flowers of red and green. Her aides were Mrs. M. H. Brown, Mrs. J. P. Lilly, Mrs. Brindly John, Mrs. David Hott, Mrs. William B. Scherr, Miss Repta McBee, Mrs. P. D. Arbogast and Mrs. J. R. Hughart.

The West Virginia Medical Journal

Directed and Edited by the Committee on Publication

[The Committee on Publication is not responsible for the authenticity of opinion or statements made by authors or in communications submitted to this Journal for publication. The author or communicant shall be held entirely responsible]

JAMES R. BLOSS, *Editor-in-Chief* - - - - - Huntington

ASSOCIATE EDITORS:

WALTER E. VEST
Huntington

HARRY M. HALL
Wheeling

J. HOWARD ANDERSON
Martown

C. A. RAY
Charleston

MR. JOE W. SAVAGE, *Secretary-Business Manager*, Charleston

Entered as Second Class Matter, January 1, 1926, at the Postoffice at Charleston, West Virginia

Volume XXIV

APRIL : 1928

Number 4

THE PROGNOSIS OF HYPERTENSION*

By LOUIS HAMMAN, M. D.
Baltimore, Md.

PHYSIOLOGISTS constantly remind us that hypertension is a symptom and not a disease. This precept is salutary and we are glad to hear it repeated again and again. But when the physiologists imply, as they commonly do, that clinicians entirely ignore this patent fact, then I consider the reproach unmerited. It is true that medical literature is intensely preoccupied with hypertension, and since the cause and significance of the symptoms are obscure, speculation is invited to wander unrestrained. Therefore, many of the innumerable publications on blood pressure are the elaboration of personal views, and only a small number deal trenchantly with observation and experiment. Still, this feverish activity is stimulated by a lively interest in the subject and a keen desire to arrive at some helpful conclusion. No doubt, this zeal, and the convenience of speaking of hypertension as though it were a disease, give an appearance that somewhat excuses the reproach of the physiologists.

The physician, though aware that hyper-

tension is a symptom and not a disease, still is driven by necessity to deal with it in a practical way. He does not know how it comes about nor what subtle biologic alterations it portrays, but he knows full well and daily sees the varied train of symptoms that follow in its path. These symptoms not only demand immediate recognition but also call aloud for aid. The physician is conscious of his ignorance, but he cannot sit idly by and wait for full knowledge to direct his action. No doubt many of his gestures are useless, and some may be harmful, but the patient observation and collation of simple facts gradually accumulates a mass of useful information. It is information about the origin and cause of a symptom, and about various manifestations that group themselves more or less consistently about the symptom, but nevertheless it serves a helpful purpose while the physician impatiently awaits a more satisfactory solution of his pressing difficulties.

All practitioners have certain definite impressions about what happens to patients with hypertension. We see, on the one hand, those who live on without any disturbing

*Read before the Central Tri-State Medical Society at Huntington, W. Va., on January 19, 1928. This paper published simultaneously with the Atlantic Medical Journal.

symptoms for a decade or two, and then die of some unrelated cause, or succumb, at a ripe old age, to apoplexy or heart failure; and, on the other hand, those in whom high blood pressure is ushered in with annoying symptoms, which gradually and ominously increase, and after a brief but stormy siege lead on to death. Between the extremes of these benign and malign courses there is every variation. When we observe a patient with hypertension, we should like to know how his disease will progress. This knowledge will not elucidate the cause of high blood pressure nor enable us better to treat it, but it will help us to answer some of the many important extramedical questions which are constantly put to physicians.

The factors that influence the prognosis of hypertension are not at all clearly defined, but vaguely we appreciate many of them. The influence of heredity becomes more and more important, as do certain constitutional factors; for instance, obesity. Physicians have long known that nephritis reduces the prospect for many years of life, and they are accustomed to separate hypertension with nephritis from hypertension without nephritis. The height of the blood pressure, especially of the diastolic pressure, is another factor of value, and also the age of the patient at which high blood pressure begins. These and other facts are known, but when we attempt to put them in the form of a precise statement, then we find that the necessary data are not available.

In a cursory review of the literature I find only scattered statistics of what actually becomes of hypertensives. There are numerous reports of groups of patients, some demonstrating that many hypertensives live ten, fifteen, or twenty years, others that the disease may run a rapid course, still others that those with nephritis have a shorter average life than those without, and so on. However, the number of cases is usually small, and in most of them the final outcome of the illness is undetermined. Life-insurance statistics are by far the most valuable for those special aspects of the subject which they cover. Of clinical studies, the report of Janeway published in 1913 is the best I have found.

In order to get an appropriate background

for a discussion of the prognosis of hypertension, I examined my office records and selected for study all those patients whose systolic pressure was 150 mm. Hg. or over. These patients were nearly all adults, only a small number being under twenty years of age. Women and men were about equally divided. Some were poor, some wealthy, but most came from the moderately well-to-do class. The medical complaints were numerous and varied, corresponding I presume, with those of the average clientele of medical practice. The majority of the patients came for diagnosis, and after the diagnostic study was completed most of them were never seen again. However, information about the subsequent course of events has been sought regularly by correspondence, so that in a large number the ultimate fate of the patient is known.

I cannot give entirely satisfactory reasons for having chosen 150 mm. Hg. as the dividing point. The mark that separates the normal, or let us better say the average, from the abnormal is no such definite number. The average itself is variable, depending upon age, sex, build, habits, climate, and many other less well-known factors, and, having settled upon an average, a wide range above and below must be allowed before we can speak of abnormal. Discarding all these factors, I selected 150 mm. Hg., not because it is an absolute division, but because a pressure of 150 mm. Hg. or over is usually, but not always, abnormal. The blood-pressure reading, in most instances, is a single observation made with the patient lying down after having rested in a chair for about half an hour while the medical history was being taken. The element of excitement may occasionally enter to vitiate the result, but it is my impression that it does so too seldom to be a factor of importance in the analysis of a large group of patients.

In a consecutive series of 8,000 patients coming for examination, 778 had a blood pressure of 150 mm. Hg. or over, an incidence of over 9 per cent. In order to give this proportion definite value, it would be necessary to ascertain the incidence of hypertension in each decade, a task which I have not had the courage to attack. I may say that only a

small number of these patients are under 20 years of age, and I believe that there are about as many below 40 as above it. Hypertension is exceptional below 40 years of age; so one may justly say that in this particular group of patients about 15 per cent of those over the age of 40 years have a blood pressure of 150 mm. Hg. or over. This figure may not be taken as the incidence of hypertension during that period of life, but as the incidence in a special group of persons presenting themselves to a physician for examination and therefore ill in one way or another.

It is interesting to contrast this figure with the incidence of hypertension in a group of presumably healthy adults. Out of 146,922 persons examined for life insurance over a period of six years, there were 2,568 instances of hypertension (systolic pressure 15 mm. Hg. above the average or diastolic 10 mm. Hg. above)—an incidence of 1.74 per cent. Distributed according to age, 76 per cent of the examinations and 36 per cent of the hypertensives fall within the period previous to age 40; 24 per cent of the examinations and 64 per cent of the hypertensives occur after the age of 40. The incidence of hypertension is therefore 0.08 per cent before 40 and 4.6 per cent after 40.

Of the 778 patients with a blood pressure of 150 mm. Hg. or over, 105 were discarded as unsuitable for the present study. In all of these patients the systolic blood pressure was 150 mm. Hg., or a little over, the diastolic pressure was below 100 mm. Hg., and the slight elevation of systolic pressure was an incidental and unimportant factor in the patient's condition. For instance, many were over 60 years of age, with no gross abnormality other than the slight elevation of blood pressure. Others had serious illness to which the slight hypertension bore no relation. Of the remaining 673 cases, we had satisfactory information of subsequent developments in 314 cases, and these form the substance of this report.

In a group of 314 hypertensives observed over a period of two years or longer, 10 per cent died during the first two years, 30 per cent during the first five years, and 78 per cent during the first ten years. (See table I.) It is necessary to comment briefly upon

these figures and to point out that they stand as relative and not as absolute values. An effort was made in each instance to fix the date of onset of the hypertension. This could be done only in the vaguest sort of way. Occasionally the date of onset can be fixed within a six- or twelve-month period. For

TABLE I

DEATH RATE IN A GROUP OF 314 HYPERTENSIVES CALCULATED FROM THE DATE OF DISCOVERY OF HYPERTENSION

	End of 2 Years	End of 5 Years	End of 10 Years
Living	281	145	30
Dead	33 (10.5%)	77 (30%)	107 (78%)

instance, a patient took life insurance in 1918 and at that time the blood pressure was normal. A year later it was found to be elevated, and has remained high since then. But such a fortunate coincidence seldom occurs, and the search for the time of onset is usually unrewarded. Another patient comes complaining of slight symptoms of myocardial insufficiency. The blood pressure is elevated but there has been no previous examination. We know full well that the pressure has been high for many years, but there is no way to tell how many, so the onset of hypertension must be dated from the time of the examination. If he dies a year later, then he dies within two years of the discovery of the hypertension. Another patient feeling perfectly well is examined for life insurance and is surprised to discover that his pressure is high. He remains well for ten years before symptoms of heart weakness come on. If he dies a year later, he is credited with having lived over ten years after the discovery of hypertension. In a few words, these figures span the period between the "discovery" of hypertension and the last report on the condition of the patient. Since, in most instances, there is no way accurately to decide the date of onset of hypertension, these figures must necessarily lack precision.

In studying the relation of various factors to the duration of life of hypertensives, it will be necessary to establish a mortality rate for the whole group. Since the effect of these factors must be estimated from the time of observation, this mortality rate must express

the expectation of life in the group from the date of examination and not from the date when the high blood pressure was first discovered. Recast in this form the figures read as follows: In a group of 299 hypertensives of all ages observed for a period of two years or longer, 14 per cent died during the first two years, 44 per cent during the first five years, and 90 per cent during the first ten years. (See table II.)

As stated above, the outcome of the patient's illness was reported usually by letter, and most of the reports were by laymen, so that in a number of the cases the exact cause of death cannot be given. The reports sufficiently clear to identify the cause of death

TABLE II

DEATH RATE IN A GROUP OF 299 HYPERTENSIVES CALCULATED FROM THE DATE OF EXAMINATION

	End of 2 Years	End of 5 Years	End of 10 Years
Living	256	119	14
Dead	43 (14%)	93 (44%)	118 (90%)

indicate that 24 per cent died of causes unrelated to the hypertension, 30 per cent died of heart failure, 27 per cent died of cerebral vascular accidents, and 19 per cent died of uremia. (See table III.) Of the patients dying directly as a result of hypertension, 40 per cent died of heart failure, 35 per cent died of cerebral vascular accidents, and 25 per cent died of uremia. These figures correspond surprisingly well with life insurance reports. From 1907 to 1920, 4,165 cases of hypertension were discovered. In 1921, 507 of these patients had died, the cause of death being shown in table IV. Janeway's figures also are similar.

I am a little surprised at these figures. Had I been asked before this analysis was made, I should have replied that I thought about 60 per cent died of heart failure, 30 per cent of apoplexy, and 10 per cent of uremia. That 25 per cent died of uremia is unexpected, and the result deserves a few comments.

The relation of high blood pressure to nephritis has long attracted attention, and the discussion of this relation has occupied a prominent place in the literature of hypertension. It is well known that certain types

of nephritis, especially the interstitial type with contraction, are accompanied by a high blood pressure commonly characterized by a high diastolic as well as a high systolic pressure. Indeed, clinically, especially from the standpoint of prognosis, it is important to distinguish hypertension secondary to nephritis from hypertension due to obscure causes, but certainly not to nephritis. To designate the latter group, various terms, but particularly essential hypertension and hyperpiesia, have been employed. Unless life be terminated by some intervening cause, nearly all nephritics die of uremia, whereas patients with essential hypertension practically never die of uremia, but instead, of heart failure or vascular cerebral accidents.

It is usually, but not always, possible to distinguish between nephritic and essential hypertension by a careful consideration of the medical history, the physical examination, and the results of renal-function tests. At the terminal stage of the disease, the distinction may be impossible and occasionally it cannot be made at earlier periods. For instance, there is a type of hypertension, commonly called malignant, that comes on in young adults, which is characterized by severe headache and a very high level of both the systolic and diastolic pressure. At first this is the only abnormality discovered; the urine is free from albumin and casts, and the kidneys show an unimpaired function. However, shortly after, albumin is found in the urine, the phthalein output falls, retinal

TABLE III

CAUSES OF DEATH IN 96 PATIENTS WITH HYPERTENSION

Heart failure	29	30%
Apoplexy	26	27%
Uremia	18	19%
Unrelated causes	23	24%

changes appear, the specific gravity of the urine becomes fixed at a low level, nitrogen is retained, and death from uremia soon follows. The disease usually runs its course in from ten to eighteen months. At first it has the appearance of an essential hypertension, but the evidence of nephritis soon shows itself and then dominates the picture to the end.

On the other hand, hypertension that almost surely begins with nephritis may later carry the mask of an essential hypertension. An example comes clearly to mind. This past winter I saw a patient 65 years of age at the request of an ophthalmologist who found serious impairment of vision due to arteriosclerotic changes in the retinal arteries. The blood pressure was systolic 260 mm. Hg., and diastolic 140 mm. Hg. There was moderately marked generalized arteriosclerosis, the urine contained but a trace of albumin and a few casts, the blood urea was normal, and the phthalein output for two hours was 44 per cent. Here was a picture of essential hypertension with marked disease of the retinal vessels, and I should so have labeled it had I not seen the patient years before. In 1911, when I first examined him, he gave a clear history of nephritis that had begun three years before. I examined him at intervals over a period of four years and during this time the urine contained albumin and casts, the phthalein output was regularly in the neighborhood of 45 per cent, and the systolic blood pressure varied from 122 to 146 mm. Hg., the diastolic from 80 to 85 mm.

TABLE IV
CAUSES OF DEATH IN PATIENTS WITH HYPERTENSION

	Life Insurance (507 cases)	Janeway (178 cases)	Present Group (96 cases)
Heart disease	30%	43%	30%
Apoplexy	21%	16%	27%
Nephritis	21%	26%	19%
Unrelated	28%	15%	24%

Hg. From 1915 to 1924 I did not see the patient. At a visit made in April, 1924, the blood pressure was systolic 178 mm. Hg., the diastolic 96 mm. Hg.

But, as previously stated, these exceptions are rare. To return to the eighteen cases reported to have died of uremia: Since the cause of death is often the statement of relatives and is usually returned as Bright's disease, there is a possibility of error in the designation. However, of these eighteen cases, nine at the time of examination showed marked renal impairment, so that only nine of the deaths ascribed to uremia occurred in the group of essential hypertension. I

believe that in some of these the diagnosis of Bright's disease is unwarranted.

It is interesting to pursue a little further, and in a somewhat different way, the relation of renal changes to prognosis in hypertension. In respect to renal changes, the whole group of hypertensives may be divided into four classes: (1) With normal urine. (2) With a trace of albumin, a few casts, or both, but with no evidence of impaired renal function. (3) With much albumin and many casts in the urine or a phthalein output of 30 per cent or under. (4) With more marked impairment of renal function, fixation of specific gravity at a low level, or a phthalein output below 20 per cent. The mortality in these four classes is shown in table V. It is thus apparent that, irrespective of what part renal change may play in the diagnosis of hypertension, prognosis becomes increasingly grave in proportion to the degree of abnormal urinary findings.

It is reasonable to assume that, other things being equal, a high blood pressure will have a worse prognosis than a lower pressure. Life-insurance statistics show this conclusively. For instance, Rogers and Hunter report upon 2,838 observations as follows:

Systolic Pressure Above Average for Age	Number of Cases	Actual Deaths	Expected Deaths	Ratio of Actual to Expected Deaths
+10 to +25, Average +20	1,307	50	34.2	146%
+26 to +35, Average +30	1,190	70	37.3	188%
+36 to +50	341	29	11.7	248%

The pressures are relatively little above normal, for in our patients we deal usually with pressure of from 50 to 100 mm. Hg. above the average. However, they demonstrate conclusively that with each increase in the pressure level the ratio of actual to expected death becomes larger. A similar table is prepared by Fisher which may be condensed as follows:

Systolic Pressure Above Average for Age	Ratio of Actual to Expected Deaths
10-14	136
15-24	184
25-34	204
35-49	248
50+	415

In respect to the pressure, I have divided my cases into four classes: (1) High systolic pressure (200 mm. or over) and high diastolic pressure (110 mm. or over). (2) High systolic pressure with low diastolic pressure. (3) Low systolic pressure with high diastolic pressure. (4) Low systolic pressure with low diastolic pressure. Table VI gives the death rate in these four classes. If we select separately the systolic and diastolic pressure, the results are as follows:

SYSTOLIC PRESSURE ALONE				
	Cases	Dead at end of 2 years	5 Years	10 Years
High systolic	99	33%	66%	98%
Low systolic	202	12%	33%	77%

DIASTOLIC PRESSURE ALONE				
	Cases	Dead at end of 2 years	5 Years	10 Years
High diastolic	103	36%	66%	100%
Low diastolic	198	10%	32%	80%

These figures demonstrate, just as do the insurance statistics, a close relation between the height of the blood pressure and the mortality rate.

A few years ago O'Hare and Walker published some interesting observations upon the relation of changes in the retinal arteries to arteriosclerosis and to hypertension. Of fifty patients with generalized sclerosis of the peripheral vessels, but without hypertension, only two had moderate sclerosis of the retinal vessels; whereas, of fifty patients with a systolic blood pressure of from 160 to 266 mg. Hg., there was a moderate or marked sclerosis of the retinal vessels in all. During the past five years, more and more attention has been paid to eye-ground changes in hypertension. It is surprising with what consistent accuracy ophthalmologists are able to diagnose hypertension from an inspection of the fundus of the eye. Nay, more than this: some of them even dare to guess the blood pressure by such an inspection, and it must be admitted that they do it as successfully as the clinician does by feeling the pulse. It would seem, therefore, that a study of the retina would give a valuable hint as to the progress and outcome of the illness. How-

ever, I was not prepared to find the remarkable correlation between the two that my figures indicate. For some years past it has been my practice to look at the eye grounds of all patients, but in earlier years this routine was not followed. I have notes on the condition of the ocular fundus in 155 patients with hypertension, followed for two years or longer, and an analysis of the records yields the results gathered in table VII.

If we compare patients showing no or only slight retinal changes with those showing moderate and extreme changes we get the following figures:

	Dead at End of 2 Years	Ratio	Dead at End of 5 Years	Ratio	Dead at End of 10 Years	Ratio
No or only slight retinal changes.....	07%	50%	20%	45%	60%	66%
Moderate and se- vere changes.....	33%	236%	62%	141%	93%	103%
Whole group.....	14%		44%		90%	

As previously pointed out, about one-third of all cases of hypertension die of heart failure. The heart failure may be sudden, due to coronary occlusion, or more gradual, due to weakening of the heart muscle.

Of the 29 cases in the group dying of heart disease, five had coronary occlusion and four more died suddenly and may have had it. Three of the cases of coronary occlusion I saw in the final illness, and the other two are reported to have died in an attack of angina pectoris. This, it seems to me, is an unusually large proportion, for 17 per cent of the cardiac deaths were certainly due to coronary occlusion, and a further 14 per cent were probably due to it, in all 31 per cent. In Janeway's series, 77 patients died of cardiac failure and 10 of these, or 13 per cent, died of angina. I cannot explain why the number of coronary deaths in my series is so much larger, but I am inclined to regard it as an accidental association, for I believe the proportion to be in excess of what is usually found.

By far the larger number of cardiac deaths in hypertension is due to gradual myocardial failure, and conversely, after 40 years of age, by far the greater number of deaths

from myocardial failure are secondary to hypertension. The former fact is generally recognized, but the second I believe is not sufficiently appreciated. Myocardial insufficiency is due to four general causes: (1) valvular heart disease, (2) hypertension in the systemic circulation, (3) hypertension in the pulmonary circulation, (4) degenerative disease of the heart muscle. The first three causes are mechanical; that is, they increase the work of the heart muscle, which then gradually undergoes characteristic changes, and finally, for reasons as yet unknown, fails to meet the excessive demands made upon it. In the fourth group, the mechanics of the circulation is unaltered and the heart fails, not from an added tax put upon it, but from weakness of the muscle which becomes unable to carry on satisfactorily an unhampered circulation. This heart-muscle weakness is due either to intoxication, usually the result of infection, or to nutritive changes, the result of a faulty quality of the blood, as in pernicious anemia, or an insufficient supply of blood, as in disease of the coronary arteries. The mechan-

fore the fortieth year, hypertension thereafter. Increased resistance in the pulmonary circulation, though interesting and important as a cause of heart failure, is uncommon and relatively insignificant when compared to hypertension in the systemic circulation. Fahr has estimated that if we exclude valvular disease, at least 75 per cent of heart failures are secondary to hypertension, and probably this estimate does not overstate the true proportion. As the average life of man becomes prolonged, the number of deaths from the degenerative diseases increases. As might well be anticipated, the death rate from heart disease mounts alarmingly, and since most of these deaths are secondary to hypertension, the importance of the problem needs no emphasis.

Since from 30 to 40 per cent of patients with hypertension die of heart failure, therefore, the condition of the heart is the most important single factor in prognosis. The capacity of the heart to come up to the demand of increased work and to sustain for a long time an adequate circulation at this higher level depends upon many factors. Under parallel conditions some hearts are able to work on for a longer time than others. Apparently the innate capacity of hearts varies, just as it does for other tissues. Upon what these constitutional factors depend we do not know, nor do we know the marks by which these variations may be detected. We become aware that they exist at all only as we watch the relative behavior of different hearts under long-continued strain. It is assumed, also, that infection and other forms of intoxication damage the heart muscle and undermine its efficient response. It is more reasonable still to conclude that disease of the coronary arteries, by interfering with the nutrition of the heart muscle, may have an important effect upon the action of the heart. We are well informed about the effects of occlusion of relatively large branches of the coronary arteries and also about changes gradually induced by the occlusion of many small arteries. However, we know of no method with the aid of which we may discover these alterations or appraise their value in determining cardiac capacity.

Our study has already demonstrated that

TABLE V

RELATION OF DEATH RATE OF HYPERTENSIVES
TO RENAL CHANGES

	Dead at End of 2 Years	Ratio of Actual to Expected Deaths	Dead at End of 5 Years	Ratio	Dead at End of 10 Years	Ratio
Class 1 (83 cases):						
Urine normal.....	8%	57%	32%	73%	85%	94%
Class 2 (159 cases):						
Trace of albumin and casts.....	13%	93%	40%	91%	83%	92%
Class 3 (26 cases):						
Much albumin & many casts.....	23%	165%	55%	125%	100%	111%
Class 4 (15 cases):						
Markedly impair- ed renal func.....	66%	471%	100%	227%		
Death rate for whole group.....	14%		44%		90%	

ical factor and degenerative changes in the heart muscles usually proceed hand in hand, but degenerative changes alone seldom lead to heart failure.

In the clinic, heart failure is usually found secondary to valvular disease or to hypertension, valvular disease predominating be-

the death rate in hypertension is accelerated in proportion to the height of the blood pressure. This fact has long been recognized, and there has been much discussion in medical literature of the "heart load." This is expressed in a number of formulas which take into account chiefly the systolic and diastolic pressures and the difference between the two. In estimating the work done by the heart, the diastolic pressure is just as important as the systolic pressure, perhaps even more so, although it is an elevation of both pressures that leads to an increase of 100 per cent and over of work above the normal average. Other things being equal, life expectancy will parallel the height of the blood pressure, and this, statistics show, it actually does.

However, in any individual instance we should like to gauge, if we are able to do so, the functional capacity of the heart. Let us

ability of the heart to rise successfully to still further demands put upon it and on the condition of the heart revealed by a careful examination.

The very simplest test of cardiac function is the daily experience of the patient. If the patient can exercise freely without respiratory or cardiac distress, we conclude that the heart has a large measure of reserve; if usual exercise causes breathlessness, then it has but little; if slight exercise brings on palpitation and panting, then it has none; if there is shortness of breath and edema at rest, failure has begun. These simple tests are put in a more precise form by studying carefully the patient's response to definite grades of exertion, the amount of work being accurately measured. Frost has recently devised a plan for testing cardiac function which he thinks gives valuable results. This test consists in estimating the circulatory response to the strain imposed by changes in intrathoracic pressure. The systolic and diastolic pressures and the pulse rate and rhythm are noted at rest, on full inspiration, or forced expiration, and at definite levels of positive and negative pressure.

In addition to the information yielded by these estimates of the range of cardiac adaptability to strain, we obtain valuable data from a minute examination of the heart. Certain abnormal physical signs are caused by the physiological adjustment of the heart to the new circulatory demands occasioned by the hypertension. These must be carefully distinguished from those that indicate a beginning weakness of the heart in coping with these extra demands. Heart muscle hypertrophies in response to increased work, and in hypertension, hypertrophy of the left ventricle occurs as a normal physiologic response. This hypertrophy usually reveals itself by a forcible apex beat and loud heart sounds. It does not produce enlargement of the heart. The wall of the left ventricle may become three times its normal thickness without adding more than a centimeter to the lateral diameter, and our methods of measuring the size of the heart are not sufficiently accurate to detect such small variations. Thus frequently in patients who for years have had a high blood pressure we find

TABLE VI
RELATION OF DEATH RATE OF HYPERTENSIVES TO
HEIGHT OF BLOOD PRESSURE

	Dead at End of 2 Years	Ratio of Actual to Expected Deaths	Dead at End of 5 Years	Ratio	Dead at End of 10 Years	Ratio
Class 1 (75 cases):						
Sys. pr. 200 or over						
Dias. pr. 110 or over	38%	271	70%	160%	100%	111%
Class 2 (24 cases):						
Sys. pr. 200 or over						
Dias. pr. under 110	17%	121%	50%	114%	91%	100%
Class 3 (28 cases):						
Sys. pr. under 200.....						
Dias. pr. 110 or or over.....	28%	200%	56%	127%	100%	111%
Class 4 (174 cases):						
Sys. pr. under 200.....						
Dias. pr. under 110	10%	71%	30%	68%	77%	84%
Death rate for whole group	14%		44%		90%	

assume that at the moment of observation the heart is meeting in a competent way the increased demand made upon it. How can we estimate the cardiac reserve or the factor of safety which will allow us to predict how long this efficient response may be expected to continue? This estimate is based on the

the size of the heart within the limits of normal. If they die of some inter-current disease, autopsy discloses only a little enlargement of the heart but a great thickening of the walls of the left ventricle and a much increased total muscle mass. Appreciable enlargement of the heart occurs only when dilatation begins, and enlargement of the heart is, therefore, a sign of weakening of the heart muscle.

As the heart hypertrophies, the valve sounds all become more forcible, but the second aortic tone is especially altered. Due to the increased pressure in the aorta, the valves are snapped into place with a greatly accentuated sound. This accentuation of the second aortic sound is a normal phenomenon of increased arterial pressure and not an evidence of disease. Frequently, the sound, in addition to being accentuated, acquires a peculiar ringing, metallic, bell-like quality. This quality is not due directly to the high blood pressure but to changes in the aorta which alter the sound-covering properties of the chamber. This metallic quality of the second aortic sound is frequently absent in hypertension and often encountered in other conditions unassociated with hypertension.

A systolic murmur at the apex is so commonly heard that one wonders whether it should really be classed as an abnormality. A systolic murmur of rougher quality is heard almost equally often at the aortic area. The one denotes slight relaxation of the mitral ring, the other slight dilatation of the aorta. As the left ventricle dilates, the mitral systolic murmur becomes louder, but the degree of dilation cannot be correlated with the intensity of the murmur.

Changes in rhythm do not necessarily indicate weakness or threatened weakness of the heart. I confess to great difficulty in putting the proper value upon their occurrence with hypertension. Extrasystoles are encountered so commonly and under so many circumstances, with and without hypertension, that they are almost negligible in this relation. Flutter and fibrillation seldom occur until other signs of beginning failure are plainly marked. Heart block and paroxysmal tachycardia are not observed often

enough to give them great importance. An alternating pulse is of somewhat greater value, for it does bespeak a failing heart; however, it never comes as an early warning, but usually only to confirm an already ominous impression. Perhaps the same may be said of that peculiar alteration of the quality and emphasis of heart sounds which is called gallop rhythm. Still, it is my experience that this has far more value in indicating a weakening heart than any of the other disturbances of rhythm. It is unfailing in its implication, and frequently occurs temporarily years before serious heart failure sets in.

To study statistically the influence of cardiac abnormality upon the death rate in hypertension, we may divide our cases into

TABLE VII
RELATION OF DEATH RATE OF HYPERTENSIVES TO
EYE-GROUND CHANGES

	Dead at End of 2 Years	Ratio of Actual to Expected Deaths	Dead at End of 5 Years	Ratio	Dead at End of 10 Years	Ratio
Class 1 (29 cases):						
No changes.....	7%	50%	26%	60%	37%	41%
Class 2 (68 cases):						
Slight changes....	7%	50%	15%	34%	80%	88%
Class 3 (34 cases):						
Mod. changes	12%	90%	41%	93%	94%	105%
Class 4 (24 cases):						
Ext. changes	62%	443%	90%	205%	100%	111%
Death rate for whole group	14%	44%			90%	

three classes: (1) Patients with normal hearts. (2) Those who have doubtful or slight enlargement of the heart, those who have a systolic murmur, and those with extrasystolic irregularity. (3) Those with definite enlargement of the heart, those with gallop rhythm or with fibrillation, and those with obvious manifestations of myocardial insufficiency: namely, dyspnea, cyanosis, pulmonary congestion, edema of ankles, etc. Table VIII gives the result.

Janeway compares the presence of cardiac hypertrophy alone with the duration of life in hypertension, and his figures show a remarkable correlation between the two. At the end of a variable period of observation for the different patients he finds: of those

showing no cardiac hypertrophy, 89 living, 8 dead, mortality 8 per cent; of those showing slight cardiac hypertrophy, 103 living, 45 dead, mortality 30 per cent; of those showing moderate cardiac hypertrophy, 83 living, 96 dead, mortality 53 per cent; of those showing marked cardiac hypertrophy, 19 living, 44 dead, mortality 70 per cent.

SUMMARY

In studying a patient with hypertension, the height of the blood pressure, the condition of the heart, the degree of kidney in-

TABLE VIII

RELATION OF DEATH RATE OF HYPERTENSIVES TO ABNORMAL CARDIAC SIGNS

	Dead at End of 2 Years	Ratio of Actual to Expected Deaths	Dead at End of 5 Years	Ratio	Dead at End of 10 Years	Ratio
Class 1 (100 cases):						
Heart normal.....	7%	50%	33%	75%	70%	78%
Class 2 (110 cases):						
Slight changes....	9%	64%	30%	68%	90%	100%
Class 3 (85 cases):						
More marked changes	30%	214%	66%	150%	96%	107%
Death rate for whole group	14%	44%			90%	

volvement, and the condition of the retinal arteries all have an important bearing upon prognosis. If the systolic pressure is 200 mm. Hg. or lower and the diastolic pressure

below 110 mm. Hg., the heart not enlarged, the urine free from albumin and casts, and kidney function unimpaired, and the eye grounds within the range of normal, then the prospect for many years of life is excellent. Any deviation from these favorable conditions clouds the outlook.

Repeated examinations are particularly desirable, because in hypertension the state of affairs changes sometimes slowly, sometimes more quickly. If from year to year there is but little change, the prognosis is better than when the advance is more rapid. Hypertension beginning with a low systolic and a low diastolic pressure may gradually rise to a higher level with a high systolic and a high diastolic pressure, and then, as the heart fails, sink again to a lower systolic level, the diastolic pressure remaining high. These alterations are often mirrored in the eye grounds, or in a gradually declining renal function, or in enlargement of the heart.

At the age when hypertension is prevalent, life at best is precarious and high blood pressure adds a number of additional hazards. It is impossible to tell in any individual case what the outcome will be, but by carefully weighing the various factors concerned, a reasonably accurate prognosis may be reached.

I wish to express my indebtedness to Miss M. S. Hamman for a painstaking analysis of the records.

SURGICAL TREATMENT OF GOITER *

By ROBERT KING BUFORD, Ph. G.M.D. F.A.C.S.

From the Department of Surgery, Charleston General Hospital

Charleston, W. Va.

THE SUBJECT of goiter has been discussed and victims of the malady have suffered and died from it all down through the ages, until its surgical relief was instituted one thousand years ago. The Arabian surgeon, Albucasis, was probably the first to attempt the removal of a goiter at Bagdad, A. D. 939.

The chemical investigations of Bauman and Oswald of the thyroid gland, laid the foundation of our present conception of the

pathology of goiter. The discovery of iodine as a normal and the proof that it was a necessary constituent of the thyroid gland, led to the discovery and isolation of thyroxin by Kendall and more recently, the brilliant achievement of Harington in working out the structural and synthetic production of thyroxin.

The thyroid gland has been called the balance wheel of nutrition. Without a normal activity of the cells, an impaired state of health must exist. Classification

* Read before the Kanawha Medical Society on Feb. 21, 1928.

of their activities is based on the effect upon metabolism. The thyroid is classed as catabolic, because it accelerates body processes. This is easily shown because its hyperfunction in goiter gives excitability and tachycardia.

The chemical and physiologic properties of thyroxin indicate that it is used directly in the process of oxidation as a catalytic agent.

Plummer suggests that thyroxin is active in nearly all or all the cells of the body, is a catalytic agent hastening the rate of formation of a quantum of potential energy available for transformation an excitation of the cells. Kendall has demonstrated that thyroxin increases the intensity at which oxidation of hydrogen occurs.

The observation by Plummer, following quantitative determinations based on the intravenous administrations of single large and daily small doses of thyroxin to patients without thyroid function:

1. The amount of thyroxin in the tissues of the average normal adult man is 14 mg.
2. The thyroid delivers approximately 0.33 mg. of thyroxin daily. This amount probably varies with the metabolic activity of the organism.
3. Until levels considerable above the normal are reached, 1 mg. of thyroxin elevates the basal metabolic rate 2.8 per cent.

The function of the thyroid gland is to maintain 14 mg. of thyroxin in the body, or to elaborate and deliver 0.33 mg. of thyroxin daily. It may have many unknown functions.

We can assume that the stimulating mechanism which causes the thyroid to discharge thyroxin is normally brought into play by potential or actual hypothyroidism.

The normal thyroid can be largely resected before diffuse hypertrophy of the remnant will occur, although it will continue to deliver the normal amount of thyroxin.

In the embryo and the new-born secretion seems to be the only product of the gland and is devoid of iodine. Colloid storage increases to five years after birth, while secretion declines. Secretion predominates in the work of the gland from nine

to fifteen years and may overshadow the colloid storage function. Thereafter up to eighteen to twenty years, sex determines the picture; the female presents in the main one of colloid storage, after eighteen the female approximates to the male type, except in pregnancy and perhaps in menstruation.

The Chinese used the ash of seaweed and sponges in the treatment of goiter as early as 1600 B. C. Iodine was used in this form until Coindet in 1820, introduced the pure drug in the treatment of goiter. He reported excellent results following the administration of five to twenty drops of tincture daily. Bauman discovered in 1895 that iodine was a normal constituent of the thyroid gland. And this gave a more reasonable basis for its use. Plummer, in 1922, introduced iodine in the form of Lugol's solution in the preoperative and postoperative treatment of patients with exophthalmic goiter. Iodine was considered dangerous before this great clinical observation.

Oswald, in 1902, called attention that the iodine contents of goiters vary directly with the amount of colloid present. Marine, and more recently, Cattell, concluded that the amount of colloid and iodine varies proportionally. The hyperplasia in the parenchyma of the gland noticeably decreases after the administration of iodine, which coincides with the relationship of colloid and hyperplasia.

Our clinical and pathological experience since the use of iodine in preparing patients for operation, has given us a rather firm conviction that there is no essential difference between exophthalmic hyperthyroidism associated with a hyperplastic gland and hyperthyroidism associated with an adenoma of the thyroid gland. I question a pathologist's ability to take a piece of gland tissue and determine the clinical type of goiter.

Marine, Kimball and Plummer have pointed out the rapid reduction of a diffuse colloid goiter of adolescence following the administration of iodine or thyroxin. I have seen a number of these cases in my own clinic. Complaining of rapid loss of weight, extreme nervousness, perceptible

changes in the gland, tachycardia, fatigue and increased basal metabolic rate precipitated by the indiscriminate use of iodine. Diffuse colloid goiter should be treated medically. They undergo spontaneous recovery, or develop into a colloid adenoma by the twenty-fifty year in the United States.

The frozen sections of exophthalmic goiter, we studied following the administrations of Lugols solution, showed less columnar epithelium and hyperplasia and there was more difficulty in making a diagnosis. The most noticeable change was the increase in the amount of colloid, is often so increased as to give a histologic picture of colloid goiter. Clinically, the basal metabolic rate and pulse fell to normal, with amelioration of the clinical signs and symptoms associated with a gain in weight.

A thorough knowledge of the anatomy, physiology and pathology of the thyroid gland is more essential than in any other branch of surgery, the time of operation more accurately selected and the time of its performance more carefully planned in the surgery of hyperthyroidism and judgment based on an extensive experience is the most essential feature in the control of mortality.

The tremendous advance that has been made by surgery in the treatment of goiter may be contrasted with a statement of one of America's eminent surgeons, Samuel D. Gross, who in 1866 wrote, "Can the thyroid, when in a state of enlargement, be removed with a reasonable hope of saving the patient? Experience emphatically answers, 'No!' No sensible man will on slight consideration attempt to extirpate a goiterous thyroid gland. If a surgeon should be so adventurous or foolhardy as to undertake the enterprise, I shall not envy him his feelings while engaged in the performance of it or after he has completed it. Should he be so fortunate as to do this, no honest and sensible surgeon, it seems to me, would even engage in such a thing."

Great progress has been made in the past sixty years and Gross, the leading surgeon of his time, would marvel at the modern thyroid clinic where operations for the re-

lief of goiter are attempted with every degree of assurance that a prompt and satisfactory cure will be achieved with but little discomfort to the patient and with a mortality of less than one per cent.

Halsted wrote one-half a century later, "The extirpation of the thyroid gland for goiter typifies perhaps better than any operation, the supreme triumph of the surgeon's art. A feat which today can be accomplished by any really competent operator without danger of mishap and which was conceived more than one thousand years ago might appear an unlikely competitor for a place in surgery so exalted."

Physicians with large experience with thyroid disease, practically all agree that the larger nodular so-called adenomatous and cystic goiters of adult life, should be operated. Nodular goiter should not remain untreated. Structural heart changes are frequently complications in cases present for years. They are unsightly, produce respiratory embarrassment, choking and progressive degenerative changes in the cardiovascular system. These findings indicate early surgical removal.

Sloan states that eighty per cent of the cardiovascular diseases were found to be caused by goiter in his clinic. We have a large number of undiagnosed thyrocardiacs in West Virginia. Sinous arrhythmia, auricular fibrillation, premature contractions and heart blocks are frequently associated with adenomatous goiter of many years' duration.

Hyperthyroidism is a sporadic disease of unknown etiology which results mainly from an abnormally increased activity of the thyroid gland. It may be associated with all types of goiter. The disease is characterized by no single pathologic picture, one finding peculiar to hyperthyroidism is parenchymatous hyperplasia, which can be demonstrated in varying degrees of activity in all over-active glands.

I have performed 740 operations upon the thyroid gland during the last thirteen years. Two hundred and twelve ligations and 528 thyroidectomies of which 173 were for exophthalmic goiter, 222 adenomas with

hyperthyroidism, 115 adenomas or nodular goiters and 18 colloid goiters. There were seven deaths in this series, a mortality of less than one per cent.

The causes of death were as follows: Two ligations, one lobectomy and two subtotal thyroidectomies for exophthalmic goiter, all dying from postoperative hyperthyroidism. Pulmonary embolism was the cause of death of one patient, seventy years of age. A subtotal thyroidectomy was done for adenoma with hyperthyroidism, complicated by endocarditis. Pulmonary edema and respiratory failure were the cause of death in one case each. A subtotal thyroidectomy was performed for adenoma with hyperthyroidism. The recurrent laryngeal nerve was injured during the ligation of an inferior thyroid artery. Subsequent operation disclosed the nerve injury was due to scar-tissue formation and the abductor paralysis was cured with return of voice in two and one-half months after release of nerve.

Infection occurred in three wounds. The wound was reopened and the bleeding vessel ligated in one case of postoperative hemorrhage. Bronchial pneumonia was recorded in two cases.

We have not had a fatal postoperative crisis since we have been preparing our cases with Lugol solution, except those cases that have been taking iodine for a long period of time and had multiple operative procedures for extraction of teeth and tonsillectomies.

I find rest in bed in the hospital essential for the preoperative care of hyperthyroidism and by such treatment the condition of the patient is greatly improved. Hospitalization may be necessary from a few days to several weeks. During this period, the heart and kidney function and the nervous stability of the patient are carefully evaluated. The results of such observation, combined with the study of basal metabolic rate, gives us a fairly accurate index of the degree of intoxication.

In the thyrocardiac group that have auricular fibrillation, digitalis is given until physiological results are obtained. A local anesthesia reinforced with gas, oxygen or ethylene is the best and safest anesthetic

for thyroid operations. Basal metabolism estimations indicate more accurately the activity of the gland. The clinical manifestations indicate the resistance of the patient.

A trained personnel is at all times essential to the good work of the surgeon. In the treatment of toxic goiter, it is absolutely imperative. A highly differentiated knowledge based upon the clinical and metabolic changes dependent upon the excessive thyroid secretion is absolutely essential for a successful management.

Most goiter patients are being menaced by long periods of temporization with all sorts of therapeutic vagaries which in most instances accomplish nothing so far as relief of the condition is concerned, but by the usual interminable delay that goes with many such makeshifts the opportunity is furnished for insidious and progressive disease to destroy the heart muscle and to demoralize the nervous system.

Anyone seeing in consultation many patients with goiter is impressed with the fact that the diagnosis of toxic goiter is often missed entirely and that valuable time is lost in treating patients with medical means when surgical intervention should have been instituted at an early date.

I believe that no medicine, no drug, no therapeutic measure of any sort except surgery should be utilized, except as adjuncts in the handling of patients with goiter other than of colloid and malignant types. Considering the end results and the low mortality following operation for hyperthyroidism, X-ray and radium has no place in the treatment of goiter.

Surgery offers more in the treatment of goiter, than any other therapeutic means. It must be most carefully regulated, the patient thoroughly treated in an institution where the staff is constantly in touch with this type of work. Where the internist, surgeon and pathologist have equal opportunities for the study of the disease and where the teamwork is perfect. When such conditions obtain, I know of no results in surgery which are more immediate, more lasting and more satisfactory than those following the surgical treatment of goiter.

MEDICAL CONSIDERATIONS OF COMMON GOITEROUS CONDITIONS *

By H. L. ROBERTSON, M. D.
Charleston, W. Va.

IN PRESENTING THIS PAPER, if such it may be called, it is not my intention to enter into any discussion as to the merits or demerits of various current theories regarding thyroid pathology nor attempt to correlate the various classifications. Thyroid discussions have been made most confusing by reason of diverse nomenclature. The biochemist, the pathologist and the clinician have each required separate classifications for their own particular investigations thus making the nomenclature decidedly confusing to the casual student of thyropathies. For this reason I am adhering to the Plummer and Boothby classification of goiter which is the most convenient clinical classification and am restricting myself to the three common types seen in our daily practice.

These are, first: diffuse colloid goiter frequently referred to in literature as "endemic, adolescent and simple." Second: exophthalmic goiter including in this, Basedow's, Graves' Disease and what is known among laymen as inward goiter. Third: adenoma with or without hyperthyroidism.

In order to compare and discuss these forms of goiter more clearly, I am going to present a hypothetical case which might appear in our offices at any time for differential diagnosis. This shall be a woman of 20 and her complaint is that she is nervous, has attacks of palpitation and she has lost weight. Our first glance shows her to be decidedly nervous, she is under weight, eyes rather prominent, she has a rather large goiter which is symmetrical and which she states has been present since adolescence.

With such a case to be studied, what are the usual conditions which this might be classified under? First: exophthalmic goiter, second: adenoma, third: colloid goiter complicated by some form of neuroses.

The following routine examination is suggested: first, the general consideration of the case. The age: uncomplicated colloid is a disease of youth. Toxic adenoma is comparatively rare before 30 to 35 years (simple adenoma are present from the cradle to the grave), 78 per cent of adenoma with hyperthyroidism are over 40 and 50 per cent are over 50 years of age. The reverse is true of exophthalmic goiter, 85 per cent are under 50 years and 61 per cent under 40 (Boothby).

The average duration of a noticeable adenoma without hyperthyroidism before the onset of hyperthyroid or toxic symptoms is approximately 16 years. The average duration of the hypertrophy in exophthalmic goiter before hyperthyroidism develops is 4 years. Our patient states that her goiter has been present since adolescence and her symptoms are of comparatively recent origin. This does not exclude exophthalmic or colloid goiter with a neuroses but is against toxic adenoma.

Palpation: do not poke your index finger at the isthmus, ask your patient to swallow and feel that you have palpated a thyroid gland. But cause the patient to turn the head sufficiently to relax the sternocleidomastoid muscle, then with the examining fingers carefully outline the gland, commencing at the isthmus and noting its size and motility. The fixed gland, especially if it is hard and nodular, warning us of possible malignancy. The soft compressible gland, colloid. The irregular or nodular type, adenoma and the firm more resilient consistency, exophthalmic. Not forgetting the possibility of substernal and subclavicular enlargements. Neither should it be forgotten that the colloid and exophthalmic goiters may contain adenoma, and do in 30 per cent. Our palpation of the patient under study presents a large, soft and spongy-like

* Read before the Kanawha Medical Society on Feb. 21, 1928.

colloid goiter but closer palpation detects several small, hard nodular developments. Palpation therefore of this case does not allow us to exclude the possibilities of adenomatous complications but is against exophthalmic goiter. Palpation however never demonstrates with any degree of certainty a hyper or hypo-thyroidism.

The general physical examination: The weight in all forms of hyperthyroidism shows a decrease in the ratio to the metabolic rate. This of course is not of goiter *per se*, and must be considered as only a collateral symptom. Though the loss of weight in exophthalmic goiter frequently runs a startling decrease.

Loss of strength is an early and characteristic symptom of thyroid disease and is an actual loss of muscle strength and not imaginary. Due to nervous excitement, the true thyro-toxic patient may think he can accomplish an act and finds to his surprise his muscular inability. In typical cases this weakness is first noticed in the quadriceps muscle and if the patient is asked to step on a chair, the weakness is readily demonstrated.

The eye signs for exophthalmus: Graafe's sign which is the failure of the upper lid to follow the eyeball on looking down. Stillwag's sign is a widening of the palpebral fissure with a resulting starey expression. Moebrie's sign is a failure of convergence of the eyes. These signs are suggestive only and are of little diagnostic value. Exophthalmis is of great diagnostic value if associated with other hyperthyroid symptoms but otherwise is worthless. Our patient states that prominent eyes are a family characteristic and there has been no noticeable eye changes in recent years. Consequently, unless we can demonstrate a true thyro-toxicosis, her eye symptoms are of no diagnostic value.

Tremors are considered one of the cardinal symptoms of exophthalmic goiter but they are neither constant nor pathognomonic. They are however relatively frequent, classified as fine tremors and may extend over a widespread area. A sheet of paper on the outstretched hands readily demonstrates the intensity and nature of the tre-

mors. Tremors of the lips and tongue are not infrequent.

The general nervous symptoms in hyperthyroidism: the nervousness may be compared to a normal person under intense excitement which may be evidenced by irritability, emotional imbalance, increased perspiration, increased peristalsis and increased heart action. To differentiate this from neuroses of one type or another is frequently difficult and the limitations of this paper do not permit discussing it in detail but it is well to bear in mind that nervousness does not induce a hyperthyroidism but on the contrary, a true hyperthyroidism does induce marked nervous symptoms. In the case we have under study, the history shows she has always been of a nervous temperament and her family history shows a nervous ancestry. Her nervous symptoms therefore are more suggestive of a psycho-neuroses than those induced by a thyro-toxicosis having no definite relation to the thyroid hypertrophy.

The examination of the heart: exophthalmic goiter is characteristic, it thumps and bangs the thoracic cage in a tumultuous storm, is usually associated with enlargements, frequently arrhythmia, auricular fibrillation, flutter and valvular murmurs and in contradistinction to the neurotic heart is always fast asleep or awake. Furthermore the murmurs of exophthalmic goiter are usually heard at the base and are functional. Colloid goiter of course presents none of these, unless complicated by cardiac conditions of various types or a neuroses. Adenoma with hyperthyroidism develops tachycardia but seldom to anything like the same degree of the violent symptoms of the exophthalmic type. But it is to be remembered that the average course of exophthalmic goiter, stimulation has but a course of about four years, whereas the adenoma had a more gradual onset of perhaps 18 years. Consequently we observe more frequently in toxic adenoma, cardiac decompensation because of the prolonged strain. In the large percentages of cases of thyroidectomized patients, these various cardiac phenomena entirely disappear indicating toxemia rather than cardiac path-

ology. It is noteworthy that all cases of thyrotoxicosis have tachycardia. If there is not rapid heart there is no thyrotoxicosis.

The case under consideration shows a rapid heart, perhaps slightly irregular but no enlargements and no valvular abnormalities. We find furthermore that her attacks are periodic and not constant and are governed largely by excitement. We have here still further evidence against a true hyperthyroidism and more evidence of a neuroses.

After the examination of the patient we are still in doubt as to whether the goiter is toxic or non-toxic. Our most reliable information on this point comes from the basal metabolic rate. The Goetch test has never been satisfactory in my hands.

Let this be borne in mind in considering the B. M. R.: that the thyroid gland is not in a fixed state of activity. We may find it in the height of an exacerbation or in a condition of retrogression induced by the administration of iodine, by rest or the normal wave that is especially noted in exophthalmic goiter. The basal metabolic rate therefore indicates the degree of heat production at the time the test is made. It does not indicate by a relatively low reading what an exceedingly toxic goiter may have been in existence but a few days previous. For this reason it is obviously necessary for us to follow intimately the history and course of the case before applying the B. M. R. and make repeated basal metabolic studies if we wish to follow the fluctuations of the disease. Outside of the leukemias there is no known condition which shows any comparable elevation to the B. M. R. like that induced by toxic goiter. Generally speaking, the B. M. R. in colloid goiter has a normal range not exceeding plus 10 per cent. In adenomatous goiter there is an elevation often but slightly above 10 per cent in its early stages and this slight variation, if noted by further examinations, shows an upward tendency and is significant of the oncoming toxicosis with much higher figures. An active exophthalmic goiter gives exceedingly high figures ranging from plus 50 to 100 per cent. A goiter therefore showing a high metabolic reading is unquestionably a toxic goiter and the collateral data

alone classifying it as exophthalmic or adenomatous.

Our patient having a B. M. R. of plus 5 is therefore adjudged to be a non-toxic goiter and physical examination shows it to be colloid in type, complicated by discreet non-toxic adenoma. Her nervous symptoms are classified as a psycho-neuroses, having eliminated by proper examination such frequent complications of thyroid diseases as diabetes, tuberculosis, syphilis, pelvic disorders or any other conceivable complication which might affect weight, heart rate and nervous poise.

The treatment: Iodine is so great a factor in the prevention, cure and aggravation of goiter that a clear concept of what happens when iodine is administered is of primary importance. It has been satisfactorily proven that colloid goiter and adenomatous goiter may be prevented by the judicious administration of iodine and this extends from pre-natal life to the age of adolescence. Lack of iodine therefore is the answer to the development of colloid and adenomatous goiter in early life. If the obstetrician would see to the administration of iodine to the expectant mother we would have less goiter to contend with in the future generation.

When hypertrophy with hyperplasia develops in later life, the administration of iodine induces rapid involuntary changes and the gland reverts to the colloid type, the nearest approach to normal that nature can do. This is but a temporary change and the cycle of toxic phenomena soon recur and usually with increased severity. The prolonged use of iodine is decidedly harmful, inducing general fibrosis of the gland.

In adenoma, iodine adds fuel to the fire, often inducing toxic symptoms in a previously non-toxic goiter and to make matters worse, the damage is not corrected by the withdrawal of the drug for the gland continues in its toxic course. It is to these cases that so much harm is done by the use of iodized salt. During the past two years I have found numerous cases of toxic adenoma that have been unquestionably precipitated into the toxic conditions by the use of iodine salt.

I cannot emphasize too strongly the danger of indiscriminate use of iodine. Never give it until the patient has been studied and you know what results may be expected from its administration. For the detail of iodine action and reaction I recommend the works of Marine and Plummer as the most comprehensive that have come to my notice.

Administration of thyroid gland or thyroxin, especially in instances of recurring adenoma after operative removal and in patients with a low B. M. R. or with diffuse colloid goiter, may cause satisfactory decrease in size. Plummer has noticed marked reduction in size after a single intravenous injection of one-twelfth grain of thyroxin, subsequently using oral administration of two to four grains of the dessicated thyroid gland, regulating the dose so that the B. M. R. stays about a plus 10 with almost complete disappearance of the gland.

As to X-ray treatment, I am totally unfamiliar as to its use, having noted that it has been discarded by the larger clinics as almost worthless and often harmful, though I believe it is still being used but not by the advanced goiter workers.

Surgery is the only thing to recommend in toxic adenoma and in exophthalmic goiter and this I believe should be done before irreparable damage has been done to heart or nervous system. Do not suppose for a minute that a case of exophthalmic goiter has recovered resulting from any treatment because of subsidence of symptoms. It is only undergoing the usual cycle of changes characteristic of the disease. It has reverted

temporarily to a colloid type but it will only be a matter of time, usually a few months, before the whole toxic phenomena will recur with increased violence. If then a toxic goiter does not show permanent signs of recovery, by all means operate before incurable damage has been done.

The colloid goiter is a medical problem, not surgical unless complicated by pressure symptoms. The rule is spontaneous cure without medication, but this I believe is the most ill treated form of goiter. In the first place it not infrequently harbors small adenoma that are not easily recognized and in the effort to reduce an unsightly mass in the neck, iodine is used with reduction of the colloid but untold damage to the adenoma. Iodine may be used with comparative safety before adolescence but not after. In the second place, colloid goiter is seen in the emotional age of youth and purely neurotic symptoms are construed to be evidences of hyperthyroidism. No basal metabolic readings being made, the case goes to the operating table and valuable normal thyroid tissue removed. Furthermore, so many diseases having thyroid symptoms such as neuroses from pelvic conditions, cardiac disease, etc., may be additional pathology to a colloid goiter and are overlooked by incomplete examinations.

We will make few mistakes in our diagnosis and treatment of this ubiquitous disease if we will make it a fast rule to settle positively one question, and that is the one point of this paper: are the symptoms presented by a goiter case due to hyperthyroidism or not?

BRONCHOSCOPY *

By E. G. GILL, M. D.
Roanoke, Va.

THE ACHIEVEMENTS recorded in the field of bronchoscopy during the past fifteen years constitute one of the brightest and most illuminating chapters in the entire realm of surgery. While we are fully aware of these accomplishments, the fact remains

that we are only on the threshold of the future possibilities of bronchoscopy. It is only within the past year that the general surgeon has recognized the value of the bronchoscope in treating atelectasis following some operative procedure. Lung mapping with lipiodol has reached its peak of development during the past year. From a

* Read before the West Virginia State Medical Association, at White Sulphur Springs, on June 22, 1927.

diagnostic standpoint the laryngoscope has its greatest field of usefulness in inspecting the larynx of the child. This is impossible with the mirror but has been made easy and precise with the laryngoscope. No anesthesia, local or general, is required and one who is familiar with the use of the instrument can complete the examination in a very short time.

The technic for doing this should be acquired by every laryngologist. It is surprising how many laryngologists of prominence do not even possess a laryngoscope and never attempt the simplest endoscopic examination. So much attention has been directed to the foreign body aspect of bronchoscopy that the routine use of the laryngoscope and esophageal speculum for diagnostic purposes has been neglected. The writer knows of a case of a child that had been treated with X-ray therapy for a supposedly enlarged thymus gland when an inspection of the larynx with the laryngoscope revealed the presence of multiple papilloma which was the cause of the dyspnoea.

Another case, that of an adult who had an external esophagotomy for the removal of a metallic foreign body at the cricopharyngeal orifice. The patient promptly died as the result of a septic mediastinitis. In this case the foreign body could have been readily removed with the use of the esophageal speculum.

When one considers the mortality of external esophagotomy for removing foreign bodies is from twenty to forty-two per cent it seems incredibly that some surgeons will persist in performing external esophagotomy.

Indications for Bronchoscopy—Some of the indications for bronchoscopy other than foreign body removal, are as follows: Bronchiectasis, chronic pulmonary abscess, unexplained dyspnea, dyspnea unrelieved by tracheotomy calls for bronchoscopic search for deeper obstruction, paralysis of the recurrent laryngeal nerve the cause of which is not positively known, obscure thoracic disease, unexplained hemoptysis, unexplained cough, unexplained expectoration. Time is not given for a detailed discussion

of the technic for treating any one of the above mentioned conditions.

As An Aid in Tracheotomy—It has been our practice during the past six years, when called upon to perform a tracheotomy on a child, to first introduce the bronchoscope and allow it to remain in the larynx and trachea while the operation is being performed. The advantages to be derived from this procedure are many. Tracheotomy in a child with a short, fat neck is a difficult task in the most skilled hands. With the bronchoscope in the trachea you have a land mark which is unmistakable and the possibility of carrying your incision to one side or cutting through the posterior wall, is entirely eliminated. Free and ample breathing space is supplied, consequently, you do not have to rush or do a stab operation. The operation can be done carefully and safely.

We have had children brought into the hospital in extreme dyspnoea and cyanosis, and while in this condition a tracheotomy could be done without local anesthesia, but the moment the bronchoscope is introduced, the entire picture is changed. The normal color is restored and breathing is free and easy, and a local anesthesia becomes necessary to complete the operation. This use of the bronchoscope is only intended for those who can expose the larynx with the laryngoscope in a very short time.

The larynx of the dyspnoeic patient is easily exposed due to the extreme muscular relaxation. While the indications for performing tracheotomy may not be entirely within the scope of my subject, it is a procedure so frequently employed following certain bronchoscopic cases as to make it an important part of our discussion.

Several of my case reports will illustrate to what an extent early and properly performed tracheotomy serves as a life-saving measure. The operation is indicated in dyspnoea of laryngo-tracheal origin. The signs as given by Jackson are as follows:

1. Indrawing at the suprasternal notch.
2. Indrawing around the clavicles.
3. Indrawing of the intercostal spaces.
4. Restlessness.
5. Choking and waking as soon as the aid

of the voluntary respirator muscles ceases in falling to sleep.

6. Cyanosis is a dangerously late symptom.

As An Aid in Intubation—Intubation has been made a more precise and safe procedure by the use of the laryngoscope. In this manner you can observe the swollen parts, remove secretions, and membrane, and if necessary introduce your bronchoscope and clear out the tracheo-bronchial tree. After this is done, the dyspnoea will be temporarily relieved and the operator will have ample time to study the case and decide as to the size of the tube that is most appropriate for the case at hand. Those who have used this method of intubation I am sure will agree that it is a decided improvement over the blind method of introducing the intubation tube.

Acquiring Skill—As a prerequisite for successful work in any branch of surgery adequate training and complete physical equipment are the fundamental requirements. This dictum has a more vital application to bronchoscopy than in any other surgical field. The question then arises as to how can this preparation be obtained.

There is only one place in this country attempting to give a systematic course in this work, that is Jackson's Clinic in Philadelphia, which course is of two weeks' duration. In so short a time one can obtain only an acquaintance with the use of the instruments.

The writer wishes to make three suggestions which are taken from his own experience. One can acquire skill in the use of the laryngoscope and esophageal speculum by examining the larynx and upper esophagus in all cases of tonsillectomy under general anesthesia for the presence of blood clots, etc. Even with the careful use of suction apparatus we will almost invariably find blood in the larynx after tonsillectomy. The importance of removing from the larynx and trachea blood and secretions from septic tonsils is perfectly obvious to all.

Excellent training can be obtained with the bronchoscope and esophagoscope by practice upon the dog. The same care and

gentleness should be exercised in dog practice as in a child. The only anesthesia required is morphine ratio being approximately one-sixth of a grain for each pound of body weight. This practice must be done regularly and systematically, to be of any real value. We find it necessary to do this work every week.

Daily practice can be carried out on the rubber tube manikin. The eye and the fingers can be trained effectually in this manner. No bronchoscopist has enough practice on the living as the cases are too infrequent and the tube is inserted for too short a time.

Jackson states that no one should attempt the removal of a foreign body from the bronchus of a child until he has removed at least 100 foreign bodies from the dog without harming the animal.

In going over our foreign body cases for the past year, we have selected seven cases to report, which we feel are of interest.

First case report is case number fourteen. Patient, age three, female, admitted December 14, 1926, gave a history on admission as having had asthma for the past six weeks and two weeks prior to admission her condition was diagnosed as pneumonia. X-ray examination of the chest revealed the presence of a mattress tack in the right main bronchus. The entire lung gave the picture of a drowned lung. The physical examination showed dullness over the entire right lung. On aspirating the pleural cavity pus was found. The patient's temperature on admission was 102.4, pulse 160, and respiration 60. In view of the patient's critical condition we decided to perform a thoracotomy for relief of the empyema before attempting a bronchoscopy. The patient died the second day following the thoracotomy. An autopsy was not permitted.

Case number fifteen, child age four, male, admitted January 4, 1927, aspirated a grain of parched corn five days prior to admission. Child's temperature was 98.2 and respiration was 24. Symptoms: coughing and strangling immediately following the aspiration of the corn and has had a slight cough and wheezy respiration since. X-ray did

not reveal the presence of a grain of corn or any pathology of any consequence, in either lung. The bronchoscope was passed and the grain of corn was located in the right main bronchus and removed. The patient made an uneventful and complete recovery and left the hospital on the second day following the operation.

Case number sixteen, child age three years, male, admitted March 14, 1927, aspirated a grain of raw corn five days prior to admission. Child coughed and strangled at the time and has had a cough and wheezy respiration since. X-ray did not reveal the presence of a grain of corn but did show some infiltration at the base of the right lung. A bronchoscopy was done and the grain of corn was easily located in the right main bronchus and removed. The child had a marked tracheobronchitis which necessitated a tracheotomy the second day following the bronchoscopy. The trachea and bronchus was kept clear of the secretions by use of a small rubber catheter introduced through the tracheotomy tube and suction applied. The tube was worn for eight days and the child was discharged from the hospital ten days following admission and has since been well.

It is of interest to note that the child who aspirated a raw grain of corn developed a very profuse tracheo-bronchitis and the one who aspirated the parched corn did not. Both patients were practically the same age and the grain of corn had been in the lungs for practically the same length of time.

Case number seventeen, child age two and one-half years, female, admitted March 15, 1927 while playing with some coins swallowed a nickel, four days prior to admission to the hospital. X-ray showed the coin lying in the esophagus just below the cryco-pharyngeal orifice. The coin was easily located with the esophageal speculum and removed with the alligator forceps. The child left the hospital the day following the operation.

Case number nineteen, child fifteen years, female, admitted May 30, 1927, gave the history of having swallowed a twenty-five cent piece sixteen hours prior to admission

to the hospital. The only symptom complained of, was slight pain on swallowing. X-ray revealed the presence of a coin in the esophagus between the third and fourth interspace anteriorly and the fourth thoracic vertebrae posteriorly. On introducing the esophageal speculum the coin was located just below the cryco-pharyngeal orifice. It was easily removed and the child left the hospital the day following the operation.

Case number twenty, child, age thirteen months, female, aspirated a pinto bean two days prior to admission. The child had a severe coughing and choking spell at the time of the aspiration. Its breathing has been very rapid and difficult since the accident. The temperature was 102.5, respiration 100 and pulse 160 on admission. X-ray examination of the patient's chest revealed a complete drowned lung on the right side. The heart and mediastinum were displaced to the right side and the right diaphragm was up. On introducing a laryngoscope purulent secretions escaped from the larynx and trachea. After the introduction of the bronchoscope the bronchus was cleared of secretions and the child's respiration dropped from one hundred to sixty. The bean was located at the orifice of the right main bronchus, it was impacted thus completely blocking the right bronchus. Only a portion of the bean was removed. Due to the patient's condition, it was decided to perform a tracheotomy and if the patient's condition improved on the fourth day following admission the second bronchoscopy was done and the remaining portions of the bean removed. The child was kept alive for six days by constant use of the suction machine and the rubber catheter introduced through the tracheotomy tube. The X-ray films taken at intervals will show the progress of the case.

Case number twenty-one, child, age nine, female, colored, gave the history of having swallowed a small open safety pin four hours prior to admission. X-ray examination revealed the presence of a pin in the position which corresponded to the right pyriform sinus. The only symptom of which the child complained was slight pain on

swallowing. At no time was there any coughing or interference of breathing or hoarseness. The esophageal speculum was introduced but no pin was seen. The laryngoscope was introduced and on exposing the larynx the hook of the pin could be seen just below the vocal cords, from which position it was removed. The child had no further trouble and made uneventful recovery.

In case nineteen the patient was given a mixture of six cc. of lipiodol and six cc. of olive oil just before the film was taken. Some of this mixture is seen in this film adhering to the coin. This was not done in case twenty-one. Had we given this mixture we would have known the pin was in the trachea and not in the esophagus.

CONCLUSIONS

1. Unless one has the proper mental and physical equipment combined with trained

assistants, bronchoscopy will cause more grief than pleasure, more harm than good.

2. The bronchoscope is a most valuable aid and at times a life-saving measure in performing a tracheotomy on a child.

3. Skill can be acquired by the daily use of the laryngoscope and esophageal speculum through inspecting the larynx and esophagus of tonsillectomy cases and by constant practice upon the dog and manikin.

4. When the indications for tracheotomy are present the operation should be done promptly and the incision should always be low, dividing the third, fourth and fifth tracheal rings. Remember always to do a tracheotomy and not a laryngotomy.

REFERENCES

1. Jackson's Text—Bronchoscopy and Esophagoscopy.

Department of Bronchoscopy, Gill Memorial Eye, Ear and Throat Hospital.

THE RELATION OF HEALTH TO THE RURAL COMMUNITIES *

By THOMAS PARRAN, JR.

Asst. Surgeon General, U. S. Public Health Service

Washington, D. C.

I ESTEEM it indeed a great privilege and pleasure to have this opportunity to be here and talk to you. Surely there is no subject in the whole field of science which possesses for its students such an interest and fascination as does this science of preventive medicine and the area of its application; and well it may when we consider its tremendous potentialities for the good of mankind — potentialities which are scarcely yet realized and even less applied. Although the doctrine of prevention has been foremost in medical thought since the time of Hippocrates, that doctrine has been a promise rather than a reality until the era of modern medicine, when men like Pasteur, Lister, Koch and others, pointed out the cause of disease and the methods of their prevention. When the history of the

past half-century shall be written, as wonderful as has been the progress along every line of human endeavor, I believe it will record no more important a contribution to our civilization than that of man's conquest of disease. The miracles of modern medicine, and particularly the miracles of modern preventive medicine, will stand with the other great scientific advancements of our time. Great progress has been achieved in recent years in the lengthening of human life, in the reduction of the prevalence of disease, and the increase of healthfulness among the human family. The average span of life, that is the life expectancy at birth, has increased nine years since 1900. During the same period of time the typhoid fever death rate has been reduced 87 per cent, diphtheria 40 per cent, and infant mortality 60 per cent. The country no longer fears yellow fever or cholera, and malaria

* Read before the West Virginia State Medical Association, at White Sulphur Springs, on June 23, 1927.

and hook-worm diseases are fast disappearing as important cases of illness. As great as have been the advances in medical science, they are small as compared with what we may expect in the future in the field of preventive medicine.

As the accomplishments of public health are critically analyzed, there are several facts which are impressive. The progress against disease has not been uniform as regards all age groups, all sections of the country and all diseases. The greatest measure of progress has been in the control of epidemic diseases—diseases which by their very severity and epidemicity have necessitated group action and community interest in their control. Those diseases, however, which are every-day diseases, as it were, the non-epidemic diseases, have been more resistant to the efforts of science to bring about their eradication. In fact such diseases as heart disease and cancer, and other diseases of middle or advanced life, have actually increased in prevalence. The older age groups have not shown increased expectation of life to the same degree as the younger age group. Another fact that stands out as we study the decrease in death rates and the increase in longevity is that the greater progress has been made in the larger centers of population; the improvement has not been so great in rural communities. There has been an improvement in death rates and in hygienic conditions both in the country and in the city, but the greatest measure of progress has taken place in the larger centers of population, and the improvement in the rural districts has been comparatively slow.

A few years ago I analyzed the data on the comparative prevalence of preventable diseases in rural and urban United States. It was found that for many of the preventable diseases the rates were higher in rural districts than in the cities. Typhoid fever, malaria, diarrhea, enteritis, tuberculosis, diphtheria and other diseases showed a higher rate in the rural areas. In spite of all the advantages the rural communities should enjoy in the way of wholesomeness of living, they have been more than coun-

terbalanced by the efforts of the health officers in the cities; so that at the present time the life expectancy in the rural districts is just about the same as in the cities and the rate of many of the epidemic diseases is higher. More than that, the trend of the death rates in the cities is more rapidly downward than the rural rate.

The reason for much of the difference in opinion in the past as to the relative healthfulness of rural and urban areas has been due to difference in definition of what is urban and what is rural. Out on the farms disease rates are generally less than in the cities, but the worst spots on the public health map of the country are the small villages, where we have a concentration of people without compensating sanitary improvements.

Based upon these two facts, first, that the decrease in disease has been largely brought about by the control of epidemic diseases, and particularly those diseases spread by environmental insanitation; and second, that this improvement has been brought about chiefly in the larger centers of population, there are certain conclusions which we can very properly draw. I believe the difference has been due to difference in community organization for medical and health service. In the larger centers of population the very force of necessity demanded that they organize health departments, protect the water supply, provide a safe milk supply, install a sewerage system, and supply hospital facilities; whereas in rural communities, with less resources and more dispersion of population, these public health assets have not been provided so rapidly. In 1911 the first county health department was organized in the United States. Since that time there has been a slow and gradual but very steady growth in organizing rural counties for health protection. The impetus to the organization of rural health services has been furnished from several sources. Studies of the epidemiology of typhoid fever by the Public Health Service emphasized the need of the sanitation of rural homes, and the experience gained in demonstrating the methods of improving rural sanitation lead

to the conclusion that a full-time county health organization furnished the best method to supply adequate health service in rural communities. The studies of the Rockefeller Foundation concerning hookworm disease and the methods for its eradication likewise led that organization to the conclusion that county health service could be arranged best through an organized health department under the direction of a full-time medical health officer. Similarly, problems of infant hygiene, of protecting the health of school children, of communicable disease control and other health problems can be handled most economically and effectively through the medium of the county health department. The value of county health departments has been particularly emphasized in recent months as a result of the Mississippi floods. As a result of this disaster plans have been agreed upon by all interested agencies for the organization of a county health unit in each of the flooded counties. As a result of the intensive health work which thus will be made possible it is anticipated that the health record of the flooded counties will be as good or better than of neighboring counties which do not have such service.

Although the first county health department was not organized until 1911, the growth of this movement has been comparatively rapid, so that in January, 1927, there were 337 counties in 37 states with this type of health service. Every community needs the services of a well organized health department. It has been found that a reasonably adequate public health service can be furnished the average county at the cost of approximately fifty cents per capita. Many county health departments are operating on the average of twenty-five cents per capita. The essential features to success in county health work is to have a trained, full-time health officer, with such nurses, sanitary inspectors, etc., as the size of the county warrants. The physicians in every community should interest themselves in creating a demand on the part of the people for a well organized health department. Public health work properly con-

ducted is to the interest not only of the public but of the medical profession as well. There is too wide a gap between the present status of scientific knowledge of the prevention of disease and its practical application by and for the great mass of the people. This difference between the extent of medical knowledge and its practical application is especially apparent in rural communities. It should be the concern of every physician that his community be supplied with the means by which organized health protection can be furnished to the people. This should be the first aim of preventive medicine.

Of equal importance to furnishing an organized community health service for the people is the problem of furnishing more adequate medical service to all of the people. Future great advances in lengthening the span of human life will come through the practice of preventive medicine by all of the physicians in the country. The efforts of physicians in treating the late stages of many diseases are comparatively futile. The public needs to be educated, and is fast being educated, to the necessity for having constant medical supervision through the family physician and the specialist. The movement sponsored by the organized medical profession for the periodical physical examination is a significant symptom of this trend in medical practice. A concerted effort should be made by the medical profession and by health authorities to convince the great mass of the public that medical service is of most value in detecting the slight deviations from normal function, in discovering the first signs of organic disorder and in applying corrective and remedial measures early in the course of disease.

The present situation is that the public in every age group suffers from a lack of early and adequate medical service. The medical profession loses because its services are not utilized. One of the most important functions of a well organized health department is to educate the people of every available means as to the necessity for early medical care in cases of sickness and constant medical supervision to maintain health.

There is needed a better conviction on the part of physicians that the greatest opportunity, both from the standpoint of serving humanity and from the standpoint of financial reward, lies in the practice of preventive medicine, in correcting slight errors in body function, in attacking disease in its incipency, when the hope for cure is so much greater. The county medical society is fundamental in connection with health work, as it is in connection with other problems that are facing you. I hope for the day when county medical societies everywhere are really active, vital organizations which are interesting themselves not only in the problems of the sick individual but in the community health needs.

It was Dr. Oliver Wendell Holmes who in 1859, I think it was, said: "The state of medicine is an index of any age or civilization; one of the best, perhaps, by which it can be judged." Considering the state of medicine in this country, we are inclined to contemplate with satisfaction our great institutions, our wonderfully equipped hospitals, our well endowed universities. Let us, however, consider the state of medicine from the viewpoint of the application of preventive measures. From this viewpoint we have not made the progress which the wonderful advances in the science of medicine should lead us to expect. Progress in this direction must be made by the concerted action of the medical profession as individuals and through their county medical societies in stimulating the demand for efficiently organized health service, and by the practice of preventive medicine.

DISCUSSION

DR. C. H. KEESOR, Wheeling:

I should like to ask Dr. Parran a question. How does he look upon the compulsory application of preventive medicine, such as vaccination, for instance? In certain cities of our state we have compulsory vaccination, and I should like to know how the Public Health Services looks upon that.

DR. DAVID LITTLEJOHN, Charleston:

We have on the statute books of the State

of West Virginia a law providing for compulsory vaccination. When that ordinance was tried to be enforced in Wheeling a few years ago some citizens protested and brought a test case to the supreme court. That court held that except in face of a threatened epidemic such compulsory vaccination could not be carried out. The only redeeming feature accompanying that decision was that the court said that one case of smallpox in a community constituted a threatened epidemic, but it said that except in face of a threatened epidemic the law could not be enforced. The health department, therefore, has been unable to enforce that law.

DR. FARRAN, closing the discussion:

In reply to Doctor Keesor's question, I can say that health authorities generally are very strongly of the opinion that vaccination against smallpox should be compulsory and that adequate laws should be passed to bring about such protection. Such laws have been upheld time and again in the courts as a legitimate exercise of the police power of the state to protect its citizens.

Interpretation of Standards

By FRANK LEMOYNE HUPP, M.D., Sc.D.
Pres. Board of Examiners for Registered Nurses
Wheeling, W. Va.

IN BEHALF of the Board of Examiners for Registered Nurses I want to express to this Association of State Nurses our appreciation for the gracious courtesy of being permitted to address you.

Many times in the past when we have approached the threshold of better things in nursing education, and trying in every way to visualize the solving of a multiplicity of problems, I have felt very much like the small boy about whom this story was told: Some friend had given him a chameleon, and when asked by his parent what had happened to the little animal, he replied: "When I put it on red, it turned red, when I put it on green, it turned green," but with tears

* Address delivered before the West Virginia State Nurses Association at Wheeling, September, 1927.

in his eyes he said, "when I put it on plaid, it busted."

But despite the bewildering problems, the disputed questions, the doubt, uncertainty and opposition encountered, in each forward step, we feel that progress has been definitely made, however slow.

Dr. Frederic S. Lee in the opening chapter of his "Scientific Features of Modern Medicine," quotes interestingly from Sir Francis Bacon's profound book on "Proficiency and Advancement of Learning," he said: "Medicine is a science which hath been more professed than laboured, and yet more laboured than advanced; the labor having been, in my judgment, rather in a circle than in progression. For I find much iteration, but small addition." Dr. Lee adds that at that time the world was standing at the threshold of a great medical advance. That the circle of medievalism had already been broken by the anatomist Vesalius, and his contemporaries; that William Harvey was soon to announce the discovery of the circulation of the blood, which was eleven long years before its acceptance. The seventeenth and eighteenth centuries were unfortunately destined to be slow. While the nineteenth century brought a score of epoch-making discoveries and with them the conquest of many devastating and fatal diseases and the emancipation of mankind from the thralldom of operative pain, all through the patient and self-sacrificing workers in the research laboratories. As Lee so aptly writes, "Each twelve month ends with a record of great achievement, and each new year begins with a clearer vision forward." Nor has this forward vision been limited to the field of medicine, for well may it be said that the profession of nursing has taken its place in the vanguard of progress and may be credited with marvelous advancement. In 1905 registration for nurses had been secured in only five states; in 1909 when Miss Nutting presided over the American Federation of Nurses, only twenty-three states had joined the registration ranks, while in this day and generation, 1927, I believe every state of the forty-eight in our Union has enacted a code and law

governing the activities of your profession along registration lines.

And what may be said of the schools? How well Miss Logan has answered this question: "It will depend upon the determination of criteria sufficiently exact to keep all schools up to their best efforts in both practice and theory, and yet elastic enough not to crush the small struggling school whose spirit is right and where growth will come in time with encouragement and leadership. It must be that the criteria set up are not themselves too static but that these criteria shall constantly raise their standards and requirements, for what is good today may be poor tomorrow."

The great and beloved Osler's wisdom may well be applied to this situation and, "you may be proud of your apostolic succession, schools and systems have flourished and gone, schools which for generations have swayed the thought of your guild; the philosophies of one age have become the absurdities of the next, the wisdom of yesterday has become the foolishness of tomorrow." Those tools used in carving your way to higher standards and ideals yesterday, may well be discarded for newer and brighter ones today.

From one corner of the state came a letter, not long ago, asking the Board to halt its vaulting hypotheses and airplaining, long enough to give his school a chance to catch up; he wondered with all the Board's standardizing and idealistic nursing gymnastics, what we were coming to? We wrote to the signer of the letter, that the great procession of American nurses was moving on to greater and better things and that his school had better get into the band wagon. I am happy to say that this very school is now on the front seat with the driver, and one of their nurses at a recent examination, through excellency of scholarship, made a *magna cum laude*. It is just such records that have made the game worthwhile, and if you will ask Mrs. Wilson, she will cite for you many examples where criticism has been followed by words of adulation. It might well be said that the Board takes great pleasure in making a

special record of its gratitude and appreciation of the untiring service of its secretary, Mrs. Wilson. A complex series of perplexing problems and difficult situations have been definitely solved by faithful and tactful correspondence and through the arduous task of personal visitation. I feel that her personal contact with the superintendents of the accredited schools will prove of fundamental value in the further development of the nursing education in our Mountain State.

The report of the committee on nursing education called by invitation of the Rockefeller Foundation several years ago, is as forceful and true today as it was when the report was issued. We can all agree that definite progress has been made and a much higher level of educational attainment has been made. In our own state, as has been said, insuperable obstacles have been swept aside and indestructible foundation stones have been placed that will safely serve for the future building. All this we know, but while strengthened by these facts and appreciating your encouragement, we cannot be unmindful of our shortcomings. The same criticism may be applied to our own Commonwealth as was applied by this notable committee to the nursing situation generally. They have insisted that the average hospital training school is not organized on such a basis as to conform to the standards commonly accepted in other educational fields; that the character of the instruction in these average schools is too casual and often uncorrelated; that the educational needs and the health and strength of the pupil nurses is too often sacrificed to practical hospital exigencies. This committee has claimed that such shortcomings are primarily due to the lack of independent endowment for nursing education. They have further emphasized that where high grade nursing is required in cases of severe illness or where service is expected in fields of public health nursing, that educational facilities in many of the schools is inadequate. Mention is also made that one of the chief reasons for the lack of sufficient recruits of a high type lies in the fact that the average hospital training school

does not offer a sufficiently attractive avenue of entrance to this field.

I think we will all subscribe without reservation to Miss Goldmark's study and the educational committee's recommendations, when they make clear that only the proper interpretation, the co-ordination and standardization of the best existing practice is necessary in order to place nursing education on that high plane where it deservedly belongs.

Again one of the vital problems for this association to aid in solving, along with the cooperation of our Board of Examiners and a problem which comes strongly recommended by the educational committee, is that if a school aims to educate nurses capable of caring for the acutely ill patients, or those schools whose nurses are going into the broader fields of nursing activities, like public health nursing, executive or teaching positions, must require for entrance the completion of a high school course or its equivalent.

More than one-third of all the training schools in this great country of ours now make this requirement. This would mean the amendment of our fundamental law. In Maryland no prospective student nurse can enter a school for training, unless the Board of Examiners provide her with a certificate indicating that her educational qualifications measure up to the minimum, which is a high school diploma or its equivalent. Should they be conditioned, they must pass an examination in those branches in which they are deficient.

There are those who will maintain that this will inflict a hardship and that we are not yet ready for so advanced a step. Our reply to these conscientious objectors would be the same that we made when a stand was taken by the limited few who objected to one year of high school as a minimum preliminary requirement: Is West Virginia to ride in the caboose or in the Pullman on the train of modern nursing educational advancement?

Upward of 150,000 girls are graduating from our high schools annually and if you are to expect a fair proportion of recruits to come into your professional ranks, if you

are to attract students of superior quality and in increasing numbers, it seems to me you must leave no stone unturned. You must make the course and its environment as attractive as possible. You teachers must eliminate from your hospitals the routine duties of no educational value; you must install full-time teachers, and the equipment must be of such a grade as would be acceptable in any reputable college or normal school. A well endowed nurses' home with every convenience and comfort for complete relaxation is absolutely indispensable.

I can see no reasonable objection to an adequate preliminary education and have it sufficiently high that the student may grasp, appreciate and assimilate the lesson and instruction taught; creating, as Miss Goodrich puts it, a trenchant demand for the humanizing of knowledge, and fostering that human touch all so essential in the struggle of those who are ill. Certainly we all will agree as the committee points out, that in every educational field the way to attract students is to raise standards, not to lower them.

Some one has so well said, I think it was Professor Welch, that nature is neither kind nor cruel, but simply obedient to law and therefore consistent.

During my tenure of office I have received many letters bearing on the postgraduate nursing education. On this question I have always felt that I could do no better than to reiterate the conclusion and recommendation of the Committee on Nursing Education, which was that every superintendent, supervisor, instructor and public health nurse should in all cases receive special additional training beyond the basic nursing service.

As was indicated in their report and it is very well known that the Teachers College in Columbia University was the pioneer in preparing graduate nurses for executive hospital supervision, and educational service. Yet attractive and helpful courses are offered in some twenty other institutions under the supervision of universities, public health associations or schools. I believe the

first organized course of this kind was offered in Boston in 1906.

I feel that an effort should be made by this association, to be permitted to make suggestions to our future governors for the vacancies on the State Board as they occur annually. I believe this could be made a part of our fundamental law. This might be a part of the function of your executive committee. At least five names might be submitted each year, setting forth the qualifications of each name suggested. Certainly no objection could possibly be urged against this helpful service.

Another constructive service for your executive committee might be the maintaining of a directory of nursing teachers, and supervisors of training schools, so that the accredited schools of the State might feel that they could appeal to your association for suggestions for vacancies when the time arose. To be sure these schools may correspond with *The Journal of Nursing* and other authorities, but how much better it would be if a definite list or directory were at the command of the schools in our own State.

Those of you who have visited the ancient city of Venice must remember the lion's mouth in the Ducal Palace. There were deposited in this great stone receptacle suggestions for the good of the government and the benefit of the people. We want every member of your association to feel that the Board of Examiners will always welcome constructive and specific criticism, suggestion, and helpful opinions and heart throbs, which can only lead to a better understanding and a cooperative harmony so imperatively needed. Then too this interested service will materially aid in placing the nursing system of West Virginia where it deservedly belongs, in that strategic position which connotes leadership rather than simply followers in the educational wake.

In closing this rather random sketch on the Interpretation of Standards, may we suggest that no more worthy and elevated goal could be aimed for by the individual

training schools of our State than to receive the recognition, after inspection, by the Board of Regents of the University of the State of New York. I have just returned from the city of Albany where I made a special visit to the far-famed Educational building. I will not pretend to tell you of this \$5,000,000, white marble structure which required four years for its erection, and which presents that unity, strength, and dignity embodied in the Empire State's educational system. It is here I interviewed the talented secretary of the Board of Nurses Examiners, Miss Harriet Bailey.

In the registration of any training school the Board of Regents requires an inspection of that school, and its endorsement is dependent upon the graduates' preliminary education, the resources and equipment of the individual hospital, the faculty of instruction, the curriculum or course of study and the requirements for graduation. One hundred and forty schools are now recognized outside of New York.

No reciprocity is given to any State by the Regents of the University of New York State, but only to the graduates of the individual schools which merit their approval after inspection. This is a long story and can only be touched, in my limited time. There are 48,000 registered nurses in the great State of New York.

If these few cursory remarks can in a small way lessen the sum of human suffering, if they can point the way to better things for the members of this association; if they can add one increment of new courage or afford for you a clearer vision, and straighter thinking, or if they have even suggested the need of a personal sense of higher mindedness and greater achievement, then they have a valid claim for your attention, and I trust may provoke a discussion more eloquent than my poor fancy can devise. The goal of nursing education, as Miss Logan has so fittingly said, your ethical ideal, is to insure the best service which you may render throughout the whole cross section of social need.

CASE REPORTS

Postmortem Findings in a Death from Burns *

By C. W. STALLARD, M. D., and
MILTON C. BORMAN, M. D.
Montgomery, W. Va.

A colored female child, five years old, was admitted to the hospital two hours after a first, second and third degree burn which involved approximately one-half of the body surface. The patient lived seventeen days during which she ran a mildly toxic clinical course. Despite immediate 2 per cent tannic acid spray, followed by sodium bicarbonate baths and frequent debridement, patient gradually weakened and died.

Postmortem examination revealed that a considerable portion of the lower burned areas was healed. Other areas were definitely necrotic for a depth of several millimeters. There was a bilateral bronchial pneumonia with a purulent bronchitis and interlobar pleural adhesions. The heart muscle was pale pink, slightly flabby, and histologically showed an atrophy of its fibers. Firm, rather extensive adhesions between the gall-bladder and the duodenum, liver, and transverse colon were noted. The spleen was pultaceous, and histologically showed an acute follicular splenitis. There was cloudy swelling of the liver cells, diffuse degeneration of the kidney tubular epithelium, extensive intestinal hemorrhage, and a duodenal ulcer about two centimeters in diameter which had penetrated through the muscular walls to the underlying pancreas.

Discussion: This report is presented because of the interesting postmortem findings and the resulting therapeutic suggestions. The essential stages through which the severe burned patient passes are shock, pain, toxemia, complications, recovery or death. One of the important factors causing death of the above patient was the extensive intestinal hemorrhage resulting apparently

* From the Orthopedic Service of the Coal Valley Hospital, Montgomery, W. Va.

from the perforating duodenal ulcer. The prevention of ulcerations so frequently noted throughout the length of the gastrointestinal tract is difficult if not at times impossible. Thrombi or bacteria passing from the burned surface of the abdomen by way of the vascular or lymphatic channels in the ligamentum teres may be responsible for infarction in the duodenum. A light, bland, non-irritating diet, with very low cellulose content should be used in all convalescent burned patients after an initial period of light liquid diet. Where such patients are cared for in a hospital, a diet without meat should be used, stool examinations for blood being made twice a week to anticipate intestinal hemorrhage. The value of transfusion in these patients, in addition to building up an anemic blood picture and combating toxemia, is to increase coagulation time and possibly prevent large loss of blood incident to hemorrhage. In a consideration of the etiology of a duodenal ulcer in an adult, the previous history of a severe burn should be of real significance. It would be interesting to know the follow-up gastrointestinal history in a series of severe burned cases, and to compare the results in burns of the back with those of the anterior abdominal wall.

Convalescent burned patients frequently develop pneumonia due probably to a markedly decreased resistance. Such factors as avoidance of sudden changes in room temperature, placing a patient's bed out of line with drafts, avoidance of contact with relatives or nurses especially if they complain of colds or other respiratory infections, frequent changes in patient's position and sitting up as early as practicable, are nursing problems requiring constant vigilance. Such patients with large, raw surfaces present easy entrance for infections of all kinds especially the streptococcus type. During the past few months we have seen two patients with large skin surface ulcerations develop an erysipelatoid infection resembling in most respects a true erysipelas. Contact with these patients after contamination with pyogenic or other pathogenic organisms should be avoided. Careful attention to a sore throat, and the use of a mild expecto-

rant such as potassium citrate or ammonium chloride would be of benefit in providing an upward flow for respiratory secretions.

It was interesting to note the degree of adhesions between the gall-bladder and surrounding viscera including the duodenum, colon and liver. The pathogenesis of such adhesions is uncertain, but they are frequently noted between various serious surfaces. Had this patient lived to come to an abdominal operation in later life, attention would have had to be paid to the preceding burn history in considering the etiology of the gall-bladder adhesions. The difficulty experienced in interpreting the pathological changes in gall-bladder grossly and under the microscope is great enough to mislead both surgeon and pathologist. Because of her age it is barely probable that this patient had a primary cholecystitis with pericholecystic adhesions without relationship to the burn.

The only mild degree of cloudy swelling noted in the liver cells was surprising. Is it possible that in youth the liver cells possess greater resistance than they would later in life? We have noted a much greater degree of liver damage in older patients dying of burns.

The kidneys were badly damaged, especially the tubular epithelium. Grossly, they were swollen, light pinkish-gray in color, and only an occasional medullary ray was noted. Red streaks were seen on the surface below the capsule. The glomeruli were markedly atrophied and contained only a small amount of blood in the tufts. This damage always to be anticipated in burns is best met by dilution of the toxins accomplished by fluids being forced by mouth, subcutaneously and intravenously. Exsanguination followed by transfusion of a larger amount of blood should be used every fourth or sixth day.

Finally, the value of a postmortem examination in discovering interesting pathological changes in what might be interpreted a routine hospital burn case, is emphasized. It keeps the clinician on the alert to discover new developments, and gives the patient more thorough and intelligent care.

Hypertension in a Child

By T. M. BARBER, M. D.
Charleston, W. Va.

Bernice G., aged 8 years, of Glasgow, W. Va., entered the McMillan Hospital August 7, 1927, complaining of photophobia, listlessness, and pain in back and in neck.

Family History: Negative save that an aunt has active tuberculosis to whom child had often been exposed.

Previous History: Full term normal delivery. Whooping cough, measles, tonsillitis at 2 years and 7 years. Polymia for years. Vague pains in limbs for years, no arthritis. For three months prior to onset, family thought they had noticed poor color and some loss of weight. Six weeks before onset, patient fell from see-saw to soft ground bruising the left side of head, no bad after-effects noted. One week before onset she fell down a flight of stairs in the dark, due to the unaccustomed position of her bed in relation to stairs. No bad effects noted as she ran back upstairs to bed.

Since infancy she had transient frontal head pains at infrequent intervals, especially after auto rides, exercise and moving pictures. These pains were occasionally accompanied by dizziness and less often by slight nausea. She never had fainted and was never dizzy other than just noted. She was always a very active child and very bright in her school work.

Present Illness: On Tuesday, August 2, 1927, a very hot day, after an especially active time of running, turning handsprings, etc., she came home at 9 p. m., climbed into her mother's lap and said her head, neck and back hurt. Ten minutes later she began to vomit in an easy gagging manner. This continued through the night and all day Wednesday. During this time she was listless and perfectly conscious. She complained that light hurt her eyes. Fever of half a degree was found by local doctor. Thursday she was able to eat and at no time since has there been any suggestion of nausea or vomiting; appetite and bowels normal. Since onset, photophobia, stiffness of neck and back had been the only constant complaints. There was no irritability. Child

was thought to be brighter and better when admitted to the hospital on August 7 when she came under my observation.

Physical Examination: Well nourished girl of 8 years lying comfortably in bed. Neck and spine held rigid but no opisthotonos, pain as to stiff muscles on rotation head. Marked double Kernig, knee jerks equal and normal, no Babinski or other disorder of reflexes. No parasthesias. Hearing and drums normal. Eyes reacted to L and D a little sluggishly and there was slight photophobia; right pupil larger than left; acuity and visual field normal as determined by rough tests. Other positive findings were: prompt answering of questions, quick to smile, clear-cut speech, heart displaced downward but not outward, short diastolic murmur at pulmonic area forceful beat. Left heel showed infected blister of a month's duration.

Course in Hospital: Admission temperature 99², pulse 98, resp. 28. In the subsequent two weeks of hospitalization, temperature ran from 99 to 98³ and up to 100 on two occasions. From sixth day it remained normal. Pulse varied between 90 and 100, respirations from 20 to 30. Laboratory found on August 7, R. B. C., 4,050,000, W. B. C. 18,000, Polys 84 per cent, L. Mon. 4 per cent, Sm. Mon. 8 per cent, Sm. Lymph. 8 per cent, Eosin. 2 per cent, Trans. 2 per cent. Urine was cloudy, acid, 1001, albumin heavy, sugar none, much pus in sediment, no casts or blood. X-ray of skull was negative. Lumbar puncture showed increased pressure, fluid tinged with fresh blood which did not diminish after withdrawal of 20 c.c. No abnormal cell count, no bacteria, Wassermann negative, and no T. B. in fibrin clot.

On August 9 in night patient had copious epistaxis. Because of this her B. P. was taken, findings 220/180 with a Tycos aneroid machine. There was no more nose-bleed, but the next morning there was drawing of muscles of left side of face, and tongue twisted to right on protrusion. No speech difficulty. Facial distortion persisted until discharged. Dr. Dillon pronounced marked choking of optic discs on August 10 and several retinal hemorrhages. Lumbar

puncture repeated that day showed xanthochromic fluid, a few red cells, 61 white cells, mostly lymphocytes, heavy fibrin clot. No T. B. On August 19, lumbar puncture showed clear fluid, increased pressure, 12 cells, 81 per cent lymphocytes, 19 per cent polys, no sugar, no globulin.

The blood pressure readings varied from 220 to 195 but most of the time ranged around 210. Patient continued perfectly comfortable during her stay. At no time did she have headache. At the end of two weeks when she was discharged, head could be flexed almost to chest and Kernig was less pronounced.

Diagnosis of Primary Hypertension was made and secondary intracranial hemorrhage and chronic nephritis. She was discharged home for observation.

On August 25 she reentered hospital because that morning she vomited several times, struggled, foamed at the mouth and became unconscious. At 6 a. m. she responded to questions, then went into a series of convulsions in which the right arm flapped and the mouth pulled to the right. B. P. was 210/160 and child was somnolent and did not want to be disturbed. On the 26th she had red vision and on 27th more convulsions. From then on she had days when she was very bright and cheerful and days when very drowsy. Eyes became puffy, there was occasional vomiting and headache.

It was suggested to family that they take child to Dr. Dandy in Baltimore in case a decompression would be of value and also to rule out possibility of brain tumor. Dr. Dandy confirmed the original diagnosis and hopeless prognosis and child died a few weeks later.

ABSTRACTS

Duodenal Ulcer

Dr. James D. Wilkie of Edinburgh, Scotland, reports a case in which the clinical history was typical of duodenal ulcer but the radiological report showed no evidence

whatever. The patient suffered for five years with periodic attacks of indigestion which came on regularly two and a half hours after food and were relieved temporarily by more food or baking soda or a mixture of bismuth and belladonna. This case when operated upon by a posterior gastroenterostomy revealed very clearly the importance of a carefully taken clinical history and ordinary physical examination in coming to a correct diagnosis.

CASE II.—The patient, Mrs. L. C., forty-one, multiparous, suffered from indigestion for ten years, the pain coming on immediately after food and not relieved by more food, alkalies or bismuth. Flatulence had been a constant trouble. She was constipated but not jaundiced. Laterally the pain became localized under the right costal margin and radiated back to the right shoulder. She had, in addition, several attacks of severe, sudden pain, lasting for several hours and leaving marked tenderness below the right costal margin. The cholecystogram showed no shadow in the gall-bladder region twelve hours after the intravenous administration of sodium tetraiodophenolphthalein. The abdomen was opened by a Kocher incision, traveling from left of the midline obliquely downwards and to the right, dividing the whole breadth of the right rectus muscle. The gall-bladder was found to be fairly large, with thickened walls and numerous stones. No stone found in the common duct. Slight thickening at the head of the pancreas. Spleen not enlarged. The appendix which was free, not thickened and had no adhesions, was removed. Stomach and duodenum normal. The gall-bladder was removed.

CASE III.—Man, forty-three, complained of loss of appetite, vomiting and abdominal pain of four months' duration. He had loss of weight, low gastric acidity and general weakness. Father died of carcinoma of the stomach. Nothing found on examining the abdomen. X-ray showed the stomach to be large and of good tone. No filling defect seen, but the food was leaving with difficulty. There appeared to be some deformity at the pylorus and duodenal cap. At operation the stomach was large and hypertrophied but

showed no evidence of carcinoma. The duodenum was greatly thickened and had a pale stippled appearance on the surface. On palpation it had a nodular feel and both above and below the duodenum there were numerous large glands, some of which were white and found to be caseous. A posterior vertical gastro-enterostomy was performed. In this case the radiological diagnosis was correct and the clinical wrong.—*International Clinics*, December, 1927.



PERSONALS

—Dr. and Mrs. R. I. Frame of Sharples spent the week-end of March 4 visiting friends in Charleston.

—Dr. S. S. Hall of Buckhannon is taking post graduate work in New York City and will return to resume his practice about the first of the present month.

—Dr. C. B. Wylie of Morgantown was a recent business visitor in Charleston and Huntington.

—Dr. Robert King Buford and Mrs. Buford of Charleston were visitors in Dayton, O., on February 28 and 29. Dr. Buford attended the clinico-pathological conference held at the Miami Valley Hospital, Dayton, and also visited Dr. Andre Crotti in Columbus.

—Dr. John N. Simpson, dean of the school of medicine of West Virginia University, spent several days in the capitol city last month calling on friends and relatives.

—Dr. C. A. Ray and Dr. G. C. Schoolfield of Charleston and Dr. W. E. Vest of Huntington have recently returned from New Orleans where they attended the session of the American College of Physicians.

—Dr. and Mrs. Hugh Thompson of Charleston are spending several weeks at Miami Beach, Florida.

—Dr. Claude L. Holland of Locust avenue, Fairmont, has recently returned from Philadelphia where he visited his son, Eugene Holland, a student at Jefferson Medical College. During his trip, Dr. Holland visited the pediatric clinics at both the Jefferson Medical College and the University of Pennsylvania.

—Dr. M. S. Doak of Price Hill, Raleigh county, has recently moved to Virginia, according to word reaching the office of the executive secretary.

—Dr. G. H. Barksdale of Charleston recently made a number of addresses in Greenbrier county on the Early Diagnosis of Tuberculosis.

—Dr. S. L. Cherry of Clarksburg made an address on the early Diagnosis of Tuberculosis before the Elkins Rotary Club on March 19.

—Dr. and Mrs. M. C. Borman of Montgomery have announced the birth of a son, Milton Carter Borman II, on March 15, 1928.

—Dr. W. M. Sheppe of Wheeling and Dr. O. B. Biern of Huntington have recently returned from New Orleans, where they attended the annual meeting of the American College of Physicians.

—Dr. Harry G. Steele of Bluefield, secretary of the Mercer County Medical Society, is taking post graduate work in obstetrics at the Jefferson Medical College, Philadelphia. Dr. Steele expects to return to his practice about the first of June.

—Dr. C. A. Ray, president of the state association, Dr. G. G. Irwin of Charleston and Dr. Harry Howell of Madison were visitors to the Logan County Medical Society at its meeting on March 21.

TUBERCULOSIS ABSTRACTS

(Copy furnished by the West Virginia Tuberculosis and Health Association)

A careful physical examination, particularly of the chest, is essential. Space prohibits full discussion of physical examination procedures, but it may be emphasized that rales heard over the apex and persisting for some time are almost diagnostic of early pulmonary tuberculosis. These rales are best elicited by instructing the patient to breathe in through the mouth, then to breathe out and to give a slight cough with the last part of the outgoing breath. Rales are heard in showers and usually well after the cough at the time the breath is inspired.

Pulmonary tuberculosis may exist without the occurrence of demonstrable physical signs. Absence of abnormal physical signs does not, therefore, mean absence of pulmonary tuberculosis. It is now recognized that the proper taking of X-ray pictures preferably stereoscopic is an essential procedure in the examination of the chest. Definite parenchymal changes are seen in nearly all instances of proved pulmonary tuberculosis.

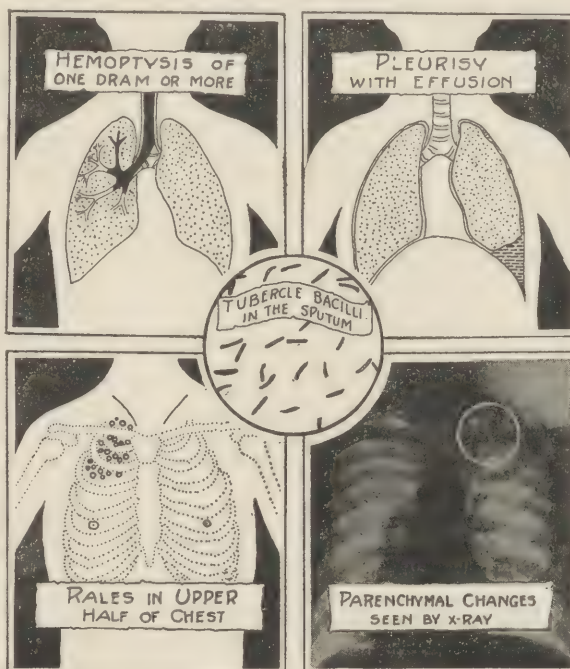
Absence of such changes demands other proof of the existence of the disease.

The determination of activity requires the correlation of clinical, laboratory and X-ray data during a period of observation, preferably in a sanatorium.

Progressive infection may exist without the presence of any symptoms. As a rule, however, the necessity for treatment is determined from the symptoms, such as fever,

night-sweats, rapid pulse, fatigue, etc. Activity cannot be determined by physical signs alone. Repeated physical examinations and serial X-rays very often show its presence. The occurrence of tubercle bacilli in the sputum does not in itself mean activity of the disease, though it does indicate a less favorable type of lesion (danger of bronchogenic spread). The same may be said of slight hemoptysis. The presence of rales does not mean activity.

The diagnosis of tuberculosis cannot however be reduced to a formula. After all possible evidence has been collected, it must be evaluated, which requires judgment based on experience and on a visualization of the pathology. Guesswork can be materially reduced however, by examining the collected evidence in the light of certain "key" symptoms. These are the so-called five criteria of diagnosis of pulmonary tuberculosis and are as follows:



Schematic Diagram Illustrating Five Diagnostic Points of Tuberculosis

(Diagram suggested by Lawrason Brown)

1. A history of hemoptysis of one dram or more without any other known cause.
2. A history of an otherwise unexplained pleurisy with effusion.
3. Definite rales which persist for a week or more in the upper half of the chest.
4. Definite evidence of parenchymal changes seen in the X-ray film, located usually in the upper half of the chest.
5. The demonstration of tubercle bacilli in the sputum on two or more occasions.

THE WEST VIRGINIA MEDICAL JOURNAL

JAMES R. BLOSS, *Editor-in-Chief*

Huntington

...ASSOCIATE EDITORS...

J. HOWARD ANDERSON
Marytown

WALTER E. VEST
Huntington

C. A. RAY
Charleston

HARRY M. HALL
Wheeling

THE JOURNAL issued on the first of each month. Entered as second-class matter, January 1, 1926. Acceptants for mailing at special rate of postage provided for in Section 1103, Act of October 3, 1917. Authorized July 24, 1919.

Subscription to Members	\$2.00 Per Year
Subscription to Non-Members	\$3.50 Per Year
Single Copies	50 Cents

OFFICERS

<i>President:</i>	
C. A. RAY	Charleston
<i>First Vice-President:</i>	
D. G. PRESTON	Lewisburg
<i>Second Vice-President:</i>	
E. L. ARMBRECHT	Wheeling
<i>Third Vice-President:</i>	
W. C. SWANN	Huntington
<i>Executive Secretary:</i>	
MR. JOE W. SAVAGE	Charleston
<i>Treasurer:</i>	
T. MAXFIELD BARBER	Charleston
<i>Delegates to A. M. A.:</i>	
JAMES R. BLOSS (1927)	Huntington
HENRI P. LINSZ (1927-28)	Wheeling
<i>Alternates:</i>	
A. A. SHAWKEY (1927)	Charleston
HARRY M. HALL (1927-28)	Wheeling

COUNCILLORS

<i>Chairman of the Council for 1928:</i>	
R. H. DUNN	South Charleston
<i>First District:</i>	
H. R. JOHNSON (1-year term)	Fairmont
C. G. MORGAN (2-year term)	Moundsville
<i>Second District:</i>	
C. H. MAXWELL (1-year term)	Morgantown
C. H. HALL (2-year term)	Elkins
<i>Third District:</i>	
JOHN FOLK (1-year term)	Bridgeport
I. D. COLE (2-year term)	Clarksburg
<i>Fourth District:</i>	
J. E. RADER (1-year term)	Huntington
W. E. VEST (2-year term)	Huntington
<i>Fifth District:</i>	
J. HOWARD ANDERSON (1-year term)	Marytown
H. G. STEELE (2-year term)	Bluefield
<i>Sixth District:</i>	
R. H. DUNN (1-year term)	South Charleston
H. A. WALKUP (2-year term)	Mt. Hope

☐ All original articles for THE JOURNAL must be made to it exclusively. Communications and items of general interest to the profession are invited from all parts of the state. Notices of deaths, removals from the state, changes of location, etc., are requested.

☐ Our readers are requested to send marked copies of local newspapers containing matters of interest to members of the medical profession. Name of sender should be given.

CONTRIBUTIONS TYPEWRITTEN

☐ Contract with present printer specifies all articles, communications, etc., MUST BE TYPED.

ADVERTISEMENTS

☐ Advertising forms will go to press not later than the tenth of each month. All advertisements must conform to the standard established by the Council of Pharmacy and Chemistry of the A. M. A.

WOMAN'S AUXILIARY

Mrs. R. V. Shanklin, Gary, President; Mrs. T. H. Harris, Parkersburg, vice-president; Mrs. W. C. Swann, Huntington, secretary; Mrs. W. D. Simmons, Slab Fork, treasurer.

Councillors

Mrs. C. G. Morgan, Moundsville, first district; Mrs. Ralph Maxwell, Morgantown, second district; Mrs. H. D. Price, Parkersburg, third district; Mrs. J. R. Bloss, Huntington, fourth district; Mrs. A. G. Rutherford, Welch, fifth district; Mrs. E. S. DePuy, Beckley, sixth district.

Delegates to Woman's Auxiliary of A. M. A.

Mrs. R. V. Shanklin, Gary; Mrs. B. S. Preston, Charleston. Alternates — Mrs. George Jeffers, Parkersburg; Mrs. W. B. Scherr, Morgantown.

STANDING COMMITTEES

Medical Defense Committee

R. H. Dunn, South Charleston, chairman; C. G. Morgan, Moundsville; I. D. Cole, Clarksburg.

Committee on Scientific Work

R. U. Drinkard, Wheeling, chairman; O. B. Biern, Huntington; A. H. Hoge, Bluefield.

Public Policy and Legislative Committee

R. A. Ireland, Charleston, chairman; R. H. Walker, Charleston; James McClung, Richwood; C. R. Ogden, Clarksburg; D. A. MacGregor, Wheeling.

Committee on Medical Education

John N. Simpson, Morgantown, chairman; W. T. Henshaw, Charleston; W. S. Fulton, Wheeling.

Committee on Professional Relations

John R. Shultz, Charleston, chairman, (1-year term); A. G. Rutherford, Welch, (2-year term); W. R. Goff, Parkersburg, (3-year term); Hugh G. Nicholson, Charleston, (4-year term); E. P. Smith, Fairmont, (5-year term)

Workman's Compensation Committee

W. A. MacMillan, Charleston, chairman; J. Ross Hunter, Charleston; R. H. Walker, Charleston.

Committee on Public Health

David Littlejohn, Charleston, chairman; John Thames, Charleston; Will McLain, Wheeling.

Surgical Section

Wade H. St. Clair, Bluefield, chairman; John E. Cannaday, Charleston, secretary.

Eye, Ear, Nose and Throat Section

E. C. Hartman, Parkersburg, chairman; I. D. Cole, Clarksburg, secretary.

Hospital Association Officers

H. F. Spillers, Wheeling, president; L. W. Lawson, Logan, president-elect; J. E. Wilson, Clarksburg, first vice-president; R. A. Ireland, Charleston, second vice-president; J. S. Turk, Wheeling, treasurer.



House of Delegates

The house of delegates is the law-making body of the West Virginia State Medical Association and, as such, it should be composed of the members of the association who take an active part in the association's affairs and who attend the sessions from year to year. Each component society should bear this fact in mind in selecting their representatives for the Fairmont meeting. Approximately sixty per cent of these delegates have already been selected, according to the records in the office of the executive secretary, and the names thus far submitted are ample proof that the various component groups have picked their delegates with care.

It is imperative that the complete list of delegates be placed in the hands of the executive secretary not later than May 1, so that the names can be printed in the convention program. In the past it has been the custom of a few societies to pick their delegates from their members present at the actual convention. This custom is very unsatisfactory and is one to be discouraged by the governing bodies. It is hoped that all of the societies in the state will elect their delegates from among their most active and most interested members and that such election will be reported to the executive secretary at once.

At some meeting prior to the state convention, the president of each county society should bring up for discussion any local suggestions or recommendations to be made to the house of delegates. Before any such recommendations are made by a county society, the members of that society should reach a complete understanding on what they want.

There are already several matters of importance scheduled to come up at the Fairmont meeting. There are two resolu-

tions pending that would alter the constitution and change the time of the election of the state officers. A petition for a charter will be presented by the recently organized Wayne County Medical Society. There will probably be some discussion relative to the advisability of establishing a state home. These are just a few of the things that each component society should discuss so that the delegates can act in harmony with the desires of his component group.

The convention itself will open on May 22 and will close on May 24. But at seven o'clock on the evening of May 21 the first meeting of the house of delegates will be held. At this meeting the various reports for the year will be presented and the principal items of business transacted. Let's have a one hundred per cent turnout for this meeting.

—C.A.R.

Dr. Spillers in New Field

Dr. H. F. Spillers of Wheeling, former superintendent of the Ohio Valley Hospital, has recently become affiliated with the Panhandle Realty Company of Wheeling, according to a news story appearing in one of the local papers there. Dr. Spillers resigned his position with the Ohio Valley Hospital about four months ago.

It is assumed that Dr. Spillers will resign as president of the Hospital Association of West Virginia, a position he has held for the past two years. This step is anticipated, of course, because of the fact that Dr. Spillers is no longer connected with hospital work. He rendered valuable service to the association of state hospitals during his term of office and he will undoubtedly be missed by that organization.

The West Virginia Medical Journal takes this opportunity to wish Dr. Spillers every success in his new work.

—C.A.R.

The Fairmont Meeting

The complete program for the Fairmont convention to be held in the Y. M. C. A. building there on May 21-24 inclusive will be published in the May number of the *West Virginia Medical Journal*. An outline of the tentative program appeared in the *March Journal*. In the present issue, your attention will be called to the convention itself, some of its features and highlights, in an endeavor to stir up the maximum amount of enthusiasm.

The news story concerning the convention will be found heading the stories appearing in the general news section. The secretaries, presidents and officers of the various component societies are especially urged to read this article so that they can talk up the meeting and bring out a maximum attendance from their respective component groups. We expect to make this the best state meeting in the history of the West Virginia State Medical Association and our fondest hope is that we will have a record-breaking attendance.

—J.R.B.

Tax Discrimination

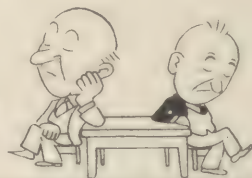
Because they cannot deduct travelling expenses incurred by attendance at medical meetings, physicians are undoubtedly being penalized under the present income tax law. Such deductions are allowed ministers, chemists, and others. It is difficult to explain the discrimination against the medical profession.

At the present time, there is a bill before the Senate Finance Committee which would amend the revenue act of 1926 and would allow members of the medical profession to deduct the travelling expenses mentioned above when computing their annual incomes. It is suggested the doctors of West Virginia write to their two senators and to their congressman requesting that this discrimination be abolished. This unjust regulation should be eliminated.

—C.A.R.



NEWS NOTES OF COMPONENT SOCIETIES



Mercer County

The Mercer County Medical Society held its regular monthly meeting and annual banquet at the West Virginia Hotel, Bluefield, on Thursday evening, January 26. Approximately 20 members and their wives were present and Dr. W. H. Wallingford, newly elected president of the society, presided.

The program was arranged by Dr. Harry Haggart and Dr. O. S. Hare and consisted of two solos by Mrs. Harry Ross, accompanied by Miss Ella Holroyd, a reading by Mrs. J. M. Barger, Jr., and a singing and dancing act by Mr. and Mrs. Jack Long, who were appearing at one of the local theatres. Following the banquet, the ladies retired and the business session of the society was taken up.

The scientific paper of the evening was presented by Dr. H. H. Wescott of Roanoke, Va., on the subject, "Joint Injuries in Industrial Work," with special reference to injuries of the back. Dr. Wescott showed a number of X-ray films in connection with his paper and laid great stress on restricting sweets and starchy foods from the diet. His paper was discussed by Dr. W. H. St. Clair, Dr. T. E. Vass and Dr. H. G. Steele. The society gave a vote of thanks to Dr. Wescott for his splendid paper.

The report of the treasurer was made by Dr. C. J. Reynolds and Dr. A. H. Hoge reported on the recent meeting of the Central Tri-State Society meeting at Huntington. The advisability of forming a Tri-County society consisting of McDowell, Tazewell, Va.,

and Mercer counties was also discussed at the meeting. The society sent its sympathy to Dr. Ben Byrd of Princeton, who is partially paralyzed.

Present at the meeting and banquet were Dr. and Mrs. W. D. Fitzhugh, Dr. and Mrs. Wade H. St. Clair, Dr. and Mrs. E. W. Horton, Dr. and Mrs. H. H. Haggart, Dr. and Mrs. C. J. Reynolds, Dr. and Mrs. F. F. Holroyd, Dr. John McGuire, Dr. O. S. Hare, Dr. R. O. Rogers, Dr. F. J. Collison, Dr. W. H. Wallingford, Dr. J. R. Vermillion, Dr. H. G. Steele, Dr. J. B. Kirk, Miss Ella Holroyd, Mr. and Mrs. Harry Ross, Mrs. J. M. Barger, Jr., Mrs. Frank Boothe, Dr. Gordon and Mr. Walter Griffiths.

ANDREW AMICK,
Acting Secretary.

Ohio County

A symposium on tuberculosis was presented at the March 16 meeting of the Ohio County Medical Society held in the Elks Club in Wheeling. Those who read papers were Dr. J. G. Petit of Hopemont, Dr. W. M. Garrison of St. Clairesville, O., Dr. J. M. McMull of Pittsburgh, Dr. William Anderson of Pittsburgh and Dr. R. B. Bailey of the Wheeling Clinic, Wheeling. The discussion was opened by Dr. E. E. Clovis and Dr. R. U. Drinkard of Wheeling.

The symposium was opened by Dr. Pettit, who read a paper on "The Early Diagnosis of Pulmonary Tuberculosis," followed by Dr. Garrison on "The Treatment of Early Cases of Tuberculosis." Dr. McMull's paper was presented on "The Veterans' Bureau Treatment of Tuberculosis," and Dr. Anderson talked on "Indications for Thoracoplasty in the Treatment of Tuberculosis." The symposium was closed by Dr. Bailey, whose paper was presented on "The Surgical Treatment of Pulmonary Tuberculosis."

The March 16 meeting, which was thrown open to the public, was one of the best this year. The moving picture film, "Let the Doctor Decide," was also shown at this session. The meeting was conducted by Dr. J. W. Gilmore, president.

H. W. BOND, *Secretary.*

Eastern Panhandle

Dr. Irving Spear, neurologist of the Maryland University Hospital, Baltimore, was the speaker at the March 14 meeting of the Eastern Panhandle Medical Society, held in the Gold Room of the Shenandoah Hotel, Martinsburg. Eighteen members of the society were present to hear Dr. Spear, who talked on "Disorders of the Central Nervous System."

The talk by Dr. Spear followed a luncheon served at the Shenandoah Hotel and presided over by Dr. E. H. Bitner, president of the society. During a short business session held in the afternoon Dr. James A. Duff, chief surgeon of the King's Daughters Hospital of Martinsburg, was elected as delegate to the state convention at Fairmont and Dr. Clifford Sperow of Martinsburg was selected as alternate. The other delegate to the convention representing the Eastern Panhandle society will be Dr. A. B. Eagle of Martinsburg, secretary.

A. B. EAGLE, *Secretary.*

Fayette County

The Fayette County Medical Society met in the dining room of the New River Hotel at Mount Hope, on February 19, at 8 p. m. The meeting was presided over by Dr. H. A. Walkup, president. Several members from the Raleigh county society were guests of the society. The Fayette organization was well represented by a large attendance, many of the physicians coming long distances over slick roads to attend the meeting.

The scientific program was in the hands of the Beckley and Oak Hill hospitals and was handled by Drs. Griss and Stansbury of Beckley; Dr. L. G. Houser, chief of the staff of eye, ear, nose and throat department of Beckley and Oak Hill hospitals. The papers and illustrations presented by the doctors were very instructive and well received by the attending physicians.

Previous to the opening of the scientific program, Gilbert Smith of the Fayette County Tuberculosis League, addressed the physicians on the subject of a full-time health officer and stated emphatically to the society

that unless a health officer for Fayette county is employed from without the county, he feared that his organization would not be satisfied and would probably withdraw its support.

After the conclusion of the scientific program sandwiches and coffee were served, after which the society was called into business session for the purpose of discussing the appointment of a full-time health officer in Fayette county. Dr. Jones addressed the society as to the action of the county court, the State Health Department and the Tuberculosis and the Red Cross societies of Fayette county in their efforts to put on a full-time health unit. The possibility of Dr. Jones for this appointment was also discussed pro and con at the conclusion of which discussion the society went on record with the following resolution:

"Resolved first, that we as members of the Fayette County Medical Society are in favor of a full-time health officer for the county; second, that we leave the appointment of such health officer to the county court, that the society favors Dr. Jones as a full-time health officer, but that any other man appointed by the court, either from within the county or from without, will be favorable."

G. A. SMITH, *Secretary*.

Ohio County

Dr. Joseph Holt Bloodgood of the Johns Hopkins University Medical School, Baltimore, Md., spoke on "What Everybody Should Know About Cancer," at the March 2 meeting of the Ohio County Medical Society held at the Wheeling Elks Club. Dr. Bloodgood's paper was accompanied by lantern slides and was well received by the Ohio society. Dr. Frank LeMoyne Hupp and Dr. J. R. Caldwell, both of Wheeling, led the discussion of Dr. Bloodgood's paper.

The speaker at the February 24 meeting of the Ohio county society was Dr. James O. Wallace of the University of Pittsburgh Medical school, Pittsburgh, Pa. Dr. Wallace presented a paper on "The Pathological Study of Internal Derangement of the Knee Joint" and his paper was discussed by Dr. R. M. Pedicord and Dr. J. O. Rankin, both

of Wheeling. The February 24 meeting was held at 8:30 o'clock in the evening in the Wheeling Elks Club.

H. W. BOND, *Secretary*.

Kanawha County

More than 50 members of the Kanawha Medical Society turned out on the evening of March 20 to hear Dr. H. Kennon Dunham of Cincinnati, who gave an interesting and instructive talk on "The Value of Pathological Interpretations in the Treatment of Tubercular Patients." The meeting was held in the assembly room of the Kanawha Hotel, Charleston, and the other speaker was Dr. R. D. Roller of Charleston, who talked on "Incipient Pulmonary Tuberculosis from a Clinical Standpoint."

The program was arranged to co-ordinate with the early diagnosis campaign sponsored by the National Tuberculosis Association and a two-reel moving picture entitled "Let the Doctor Decide" was shown during the evening. This picture was furnished through the courtesy of Mr. George C. Rowell, executive secretary of the West Virginia Tuberculosis Association.

Following the talk by Dr. Dunham, considerable time was taken up by the general discussion and the speaker was kept busy answering questions propounded by the members of the Kanawha Medical Society. The meeting was presided over by Dr. W. W. Point, president.

J. R. SHULTZ, *Secretary*.

Lewis County

A very interesting meeting of the Lewis County Medical Society was held at Weston on March 13, 1928, this being the regular monthly meeting of the society. Papers were presented by Dr. R. B. Bailey and Dr. D. A. MacGregor, both of the Wheeling Clinic, Wheeling. Dr. Bailey is a former Weston boy and the members of the Lewis county society were particularly interested in his splendid paper.

Dr. Bailey presented his paper on the "Surgical Treatment of Pulmonary Tuber-

culosis," advocating radical rib resection from the first to the tenth ribs for unilateral tuberculosis where other means fail. His paper was illustrated with lantern slides showing 33 per cent recovery in a series of five hundred selected cases.

Dr. MacGregor talked on the "Pathology of the Chest," and his paper was also illustrated with lantern slides showing unusual chest conditions. He gave a fine talk on diagnostic points in chest conditions. The March 13 program was one of the best the Lewis county society has had for some time.

Those present at the meeting were Dr. M. D. Cure, Dr. George Snyder, Dr. W. H. Greene, Dr. E. T. W. Hall, Dr. G. R. Post, Dr. A. F. Lawson, Dr. D. D. Chapman, Dr. C. B. Rohr, Dr. H. B. Neagle, Dr. R. B. Bailey, Dr. D. A. MacGregor and Dr. O. L. Hudkins.

O. L. HUDKINS, *Secretary*.

Logan County

The March meeting of the Logan County Medical Society was featured by a visit from Dr. C. A. Ray of Charleston, president of the West Virginia State Medical Association, who gave a splendid talk on work and aims of the association and a review of what was accomplished during the past year. Approximately 25 members of the Logan society turned out for the meeting, which was one of the best held in the past several months.

The scientific paper of the evening was read by Dr. G. G. Irwin of Charleston on "The Prostatic Patient." Dr. Irwin accompanied Dr. Ray to Logan and his paper was well received by the audience. Dr. H. M. Howell of Madison, Boone county, was also in attendance. Many of the doctors present took part in the discussion that followed Dr. Irwin's paper.

P. B. WINGFIELD, *Secretary*.

GENERAL NEWS

Fairmont's Invitation

The sixty-first annual meeting of the West Virginia State Medical Association will be held in Fairmont, the city where the society was originally formed in April, 1867, with an estimated attendance of more than 500 members. The program has been practically completed, the scientific and commercial exhibits arranged for, the plans for the banquet and ball well rounded out; in fact everything has already been worked out that might contribute in any way to a successful convention.

Included on this year's program are such men as Dr. Howard Lilienthal of New York City who will talk on the surgical treatment of tuberculosis, Dr. William B. Porter of Roanoke, Va., Dr. Dean Lewis of Johns Hopkins University who will read a paper on the diagnosis and treatment of surgical lesions of the stomach, Dr. J. J. Singer and Dr. John R. Caulk of St. Louis, Mo., Dr.

Albert H. Freiberg of Cincinnati who will talk on the surgical aspects of infantile paralysis, Dr. Elliott P. Joslin of Boston, Dr. Curtis Burnam of Baltimore, Dr. Willis C. Campbell of Memphis, Tenn., Dr. James Mitchell of Washington, D. C., and Dr. Fred W. Rankin of the Mayo Clinic at Rochester, Minn.

A new innovation at the Fairmont meeting will be the introduction of scientific exhibits which will be placed in the same room occupied by the commercial exhibitors. Those who have already agreed to put on these scientific exhibits include Dr. E. H. Boyer of Charleston, the Wheeling Clinic of Wheeling, St. Luke's Hospital of Bluefield and the West Virginia State Department of Health. There are two booths for scientific exhibits that have not yet been taken.

The entire convention will be housed in the Fairmont Y. M. C. A. building and the convention headquarters will be at the Fairmont Hotel. The distance between the two

buildings represents a walk of about five minutes. The Y. M. C. A. building is very complete in every detail and will be able to take care of the various sectional meetings, the general sessions, and the meetings of the woman's auxiliary. Officials of the Fairmont Y. M. C. A. have promised the association full use of their entire building, which means the swimming pool and bowling alleys.

Arrangements are under way at the present time to secure the use of the golf course of the Fairmont Country Club for the use of members attending the convention and the usual convention tournament will be held during the session. It is understood that another handsome silver cup will be presented to the winner of this tournament, similar to the one presented last year at White Sulphur Springs.

The annual banquet and dance will be held at the Elks Club in Fairmont on the evening of May 23 and the sum of \$2 will cover the entire assessment for this function. The Marion County Medical Society has already secured the services of entertainers extraordinary for the banquet and the program will undoubtedly be one of the best banquet programs ever put on at an association affair.

When the association meets in Fairmont, it is going back to the "old home town," where it was formed 61 years ago in the old Methodist Protestant church. When the first meeting was held in 1867, the Baltimore and Ohio railroad contributed free tickets to the members in attendance. The Marion County society expects this year to outdo in hospitality the financial benevolence of the Baltimore and Ohio in the dark days just following the Civil war.

Dr. Camp Appointed

Announcement of the appointment of Dr. W. C. Camp of Spencer as health officer for Roane county was recently made by the state health department. Dr. Camp had been acting in the capacity of health officer for some weeks before the appointment was made. The position was formerly held by Dr. Frank Makepeace.

Patients Feign Illness

Skin games in which the victim and the perpetrator are the same person are described in the current issue of *Hygeia* by Dr. William Allen Pusey. People do astounding things to themselves to feign illness. Sometimes it is only a harmless prank of heating a thermometer to show excessively high temperatures. In other cases hopeless deformities are produced.

Physicians encounter persons with feigned illnesses in a surprising number of cases. They are nearly always furtive and show evidence of hysteria. They usually take pride in creating a mystery and are sure their secret will not be discovered.

Feigned eruptions of the skin are frequently produced by application of caustic or by digging the skin with nails—human or metal, Dr. Pusey says. In many cases they produce ulcer after ulcer until the part of the body becomes deformed or useless. They may burn off a finger piecemeal or cause such destruction of the hand that amputation is necessary.

Often no motive for this peculiar obsession can be established. Some times it is a desire for attention; sometimes the patients are unhappy with their lot and hopeless of their prospects in life. They may do these things to escape their duties or to get recompense from industrial boards.

Foreign Substance Record

A record case of foreign substances in a human stomach is described in *Hygeia*. Two Canadian physicians reported that 2,533 different metallic objects were found in a woman's stomach. They included bent pins, tacks, corset steels, garter fasteners, needles, buttons, beads, washers, an American penny and a pen point.

The woman, who is 42 years old, had been swallowing the articles over a period of years but felt no pain until recently. An operation was performed.

The greatest number of foreign objects found in a stomach previously was 1,146 in a case reported in 1911.

James Whann McSherry, M. D.

1833—1928

Dr. James Whann McSherry, the oldest living member of the West Virginia State Medical Association and the oldest living ex-president of the association, died at his home in Martinsburg on February 28, 1928. Dr. McSherry was 95 years of age, having been born in Martinsburg on December 7, 1833. The deceased joined the association in 1871, four years after it was founded, and became its president at the state meeting held in Weston in 1878, just fifty years ago next May.

There was probably no other man in Martinsburg who was more highly esteemed by all classes than Dr. McSherry. He was first of all a physician, then a bank president, he was twice mayor of the city, he was an officer in the Confederate army during the days of the Civil war, and was an all-around enterprising and progressive citizen whose education, intelligence and opportunities were always put forth for the advancement of his community.

Dr. McSherry first attended school at Martinsburg Academy. After graduating, he went to St. Marys College in Baltimore for his preparatory work and later attended the University of Maryland medical school, graduating in 1855. Leaving college, Dr. McSherry took up his practice in Peytona in what was then Boone county, Virginia. When Virginia seceded from the Union, he immediately offered his services to Governor Henry A. Wise and was commissioned a surgeon in the Confederate Army. Upon organization of the Virginia troops, he was commissioned a Captain of Company B, 36th Virginia regiment. After serving in a

number of important battles, Dr. McSherry was taken prisoner on November 19, 1863, and removed to Malden, six miles east of Charleston. Later he was removed to Wheeling, then to Camp Chase, Ohio, and still later to Ft. Delaware. When peace was declared, he returned to Martinsburg and again engaged in the practice of his profession.

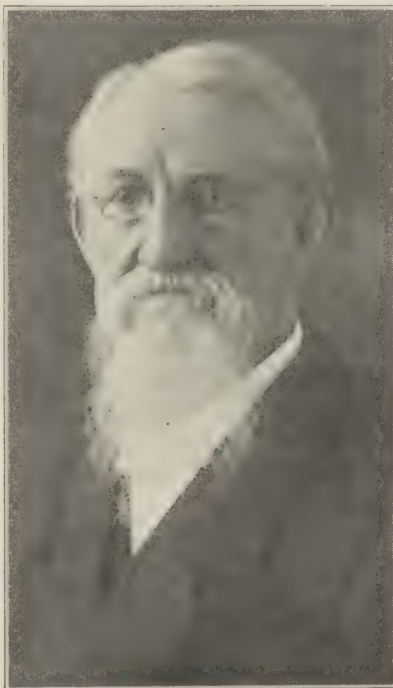
During his service with the Confederacy, Dr. McSherry took part in battles at Fort Donaldson, Scary Creek below Charleston, Summersville, Carnafax, Sewell Mountain, Cotton Hill, Fayetteville, Dogwood Gap, Chattanooga, Knoxville and Cross Lanes where General Tyler was defeated.

On June 3, 1876, Dr. McSherry, at the age of 43 years, married Miss Virginia Faulkner, youngest daughter of the Honorable C. J. Faulkner and the sister of former Senator C. J. Faulkner and Judge E. Boyd Faulkner.

Although eligible for honorary membership for 29 years, Dr. McSherry would never accept this honor until 1926, when it was conferred upon him at the Morgantown meeting. Even after his election as an honorary member, Dr. McSherry

insisted on sending in his check for dues in 1927, and it was only with much persuasion that he accepted his own check when it was mailed back to him.

He was buried in the old Norbourne cemetery at Martinsburg on the second day of March and his funeral was a fitting tribute to the active and affectionate life he had led. In passing on, Dr. McSherry has left this world a much better and a much happier place for having lived in it.



Health Office, Medical Profession and the Laity *

By JOHN THAMES, M. D.

Kanawha County Health Officer

The principal factors in a county health program are the health officer, his staff, the medical profession and the people. The closer these factors are related by a mutual understanding a more satisfactory service is rendered. My effort, therefore, will be to emphasize the importance of maintaining a close inter-relation between the health officer, the members of his staff, the medical profession and the laity for a mutual benefit. Within the last half century and moreso during the last two decades, medical science has advanced remarkably, alike in prevention and treatment of diseases. Wonderful discoveries have been made and publicly exploited until the public is becoming more enlightened and is therefore demanding a larger and more efficient service. A true knowledge of the cause and mode of communication of many diseases is rapidly becoming better known. The causative factor, the organism, is identified and methods adopted to prevent its growth is evidence that organized medicine not only occupies a place of leadership in medical science but also in prevention of disease and promotion of health; thereby demonstrating that excellent altruistic spirit that so distinguishes the profession.

The expensive unsatisfactory practice of endeavoring to control contagious disease by quarantine is rapidly being replaced with hygienic measures that fortify the people against the invading enemy. This may be accomplished by educating the people to isolate known cases; practice home and community sanitation; submit to individual immunization. The medical profession as well as the health officer should have a clearer and broader vision which can be obtained by recounting the outstanding needs of the public which may be had from available data. It appears that the various welfare organizations have been successful in making surveys and accumulating data.

* Original paper.

The record indicates that a total of approximately 700,000 or one-fourth of the children born in the United States are improperly cared for, in the main by ignorant midwives. The records of the U. S. Bureau of Census show that 161,478 die annually during the first year and 108,478 infants, or about sixty-seven per cent, die before they reach three months of age. It is also a significant fact that there has been no material reduction in the maternal death rate in the registration area during the last two decades. It is estimated that at least seventy-five per cent of these deaths are preventable. Hundreds of thousands suffer from diarrhea annually and between thirty and forty thousand die of this preventable disease. Consider the large army of undernourished children estimated by the best authorities to be at least 6,000,000. Much of this malnutrition is due to physical defects, infections and bad environment. Then we should take notice of the adolescent period, the age of sex impulse, the age during which occurs the largest number of cases of venereal infections. It has been estimated, by those in position to know, that about one-tenth of all deaths are caused by luetic infections and these infections are responsible for at least twenty per cent of the inmates in our institutions for the insane. Also a large number of the patients that fill the gynecological wards of our hospitals can be traced to this cause. Judging from our experience in public health it is believed that only about eighty per cent of venereal cases receive any treatment and many of these seek the advice of friends or come under the influence of quacks. These needs reveal a condition that is rapidly becoming apparent to all humanity. It is a reflection on their intelligence and a challenge to organized medicine for intelligent and constructive service to motherhood and a growing generation.

Education of the people will solve these outstanding problems. Health by education is the only solution. Because of the ignorance of the public and the indifferent attitude of the laity is there any wonder that cults, pathies, isms, and charlatans of every kind catch the mind of the people. It is

going to require a most persistent, systematic and intelligent attitude on the part of the organized profession to change this condition of mind. The public will have to be enlightened concerning the prevention of disease and the benefits derived from scientific medicine. The medical profession is best qualified to undertake this larger service that will afford a closer relation between medical practice, curative medicine and community public health activities. It is an important privilege of every medical society to determine plans, ways, and means by which their members will advocate and carry out a more definite policy, (1) the education of the public in preventive medicine, (2) periodic medical examinations for those who are apparently well and (3) formulate a plan which will enable the members of the medical society to assume the responsibility for any corrective work that may be necessary among children and which may be done in accord with the ethics of the profession. When this is done, the medical profession will assume its rightful place in directing public opinion in the physical salvation of the people and will increase and maintain their dignity, influence and prestige.

Many excellent papers have been recently presented outlining the relation of medical practice to health agencies, both official and non-official, and the part which organized medicine takes in the modern organized health program.

"In my opinion the medical profession leaves the work of the allied organizations too much in the hands of the laity." The laity have an essential part in preventive medicine, they should understand that all of their organized activities must be directed by the best trained members of the medical profession if they would obtain the required results.

We all agree that school children should be examined for the purpose of detecting defects. The large sums of money spent annually for this work cannot be regarded as an economic procedure in public health practice. The percentage of corrections is entirely too low. The medical profession should grasp this opportunity, for a greater

service and financial gain. By so doing it will not only result in a more healthful, vigorous citizenship that will solve economic problems of state and nation but it will also increase the public confidence in the medical profession.

The health officer is a member of the medical profession. A specialist in preventive medicine, entitled to all the professional courtesies as any other member, he certainly should be in sympathy with medical practice and acquainted with the problems and difficulties of the practitioner. He should insist on the rights of physicians; refer all cases needing treatment to the family physician and under no circumstances will he undertake to treat a case further than to give the necessary first aid in emergencies. After all, the success of any public health administration depends very largely on the health officer. He should be able to establish the proper reciprocal relation between the health department and the medical profession. Not only trained in his official branch but as an instructor and leader he should be enlightened with the ideals and purposes of the profession. A man is needed to fill such a position who has courage of his convictions and not influenced by partisan politics.

While there are activities of health organizations that may be somewhat undesirable to some members of the profession and in time may need adjustment there is no excuse for accusing public health work of leading toward "state medicine." On the contrary in my judgment if the time should ever come when it would be necessary for the medical profession to stand as a unit for justice and witness strongly for the truth, the best argument which can be presented to defeat "state medicine" will be the fact that our profession has liberally and consistently stood for and promoted public health activities in the prevention and control of disease and only on this ground can such legislation be defeated.

This is a day of the specialist and the medical profession must realize that the time is ripe for a new adjustment between the established health agencies, the medical profession and the people. The wise physi-

cian will face the facts without fear, and with true altruism, grasp the opportunity to magnify and maintain his well-earned position by giving the public a larger and better understood service, then we will be able to welcome changes based upon truth.

Membership Records

On March 22, with only nine days left in which to report 1928 dues to the office of the executive secretary, the Lewis and Taylor county medical societies were well in the lead with only one unpaid member each. Lewis county, however, had a slight edge in the percentage as the membership of the Lewis county society is slightly larger than the membership in Taylor. It was thought that both of these societies would be over the top with a one hundred per cent paid-up membership by the first of April.

The Eastern Panhandle Medical Society has also made a creditable showing so far this year, although there were two unpaid members on the roster of this society on March 22. However, the Eastern Panhandle society has already increased its 1928 membership by four and is the first society to report such an increase. Dr. A. B. Eagle of Martinsburg is secretary of the Eastern Panhandle society, Dr. O. L. Hudkins of Weston is secretary of Lewis county and Dr. F. S. Suddarth of Grafton is treasurer of the Taylor county society. These three county officers are to be congratulated upon their splendid record for the present year.

The Logan County Medical Society has reported the dues of six new members already this year but this society still had eight unpaid members on March 22. Mingo county has only five unpaid members while the Grant-Hardy-Hampshire and Mineral Society has only three unpaid members. The respective secretaries of these three societies are Dr. P. B. Wingfield of Logan, Dr. Fred Ben Quincy of Williamson and Dr. T. C. Giffin of Keyser.

Among the larger county societies in the state, Harrison county probably stands out better than the rest. On March 22 there were 59 paid-up members in the Harrison county society out of a total membership

of seventy-seven. Ohio county had the next largest number of paid-up memberships with fifty-two, but there is an enrollment there of 96 members. McDowell county runs third with 36 paid-up members, which is a very good record when it is considered that there are only 47 members of that society.

By the time this issue of the *West Virginia Medical Journal* is off the press, the percentages of the respective county societies will undoubtedly be changed to a great extent. It is understood that many of the secretaries are attempting to get their memberships one hundred per cent paid up before making any report to the office of the executive secretary.

All members whose dues are not reported to the executive secretary by April 1, 1928, will be placed on the delinquent list and their subscription to the *Journal* will be temporarily stopped until their dues are paid up. This step is necessitated by postal regulations and the editors of the *Journal* have no other choice but to mark the names of delinquent members from the *Journal* mailing list.

The total number of paid-up memberships on March 22 was well over the five hundred mark. This figure is considerably higher than it was on March 22 of last year and there is every indication that the list of delinquent members will be reduced to a minimum when the list is compiled on the first day of April.

J. S. Turk Appointed

Mr. J. Stanley Turk of Wheeling, a former executive associate of the Wheeling Steel Corporation, recently assumed his duties as superintendent of the Ohio Valley General Hospital, Wheeling, to succeed Dr. H. F. Spillers. Dr. Spillers is now connected with the Panhandle Realty Company of the Ohio county seat.

Mr. Turk acted as temporary head of the Ohio Valley Hospital for several months, assuming charge when Dr. Spillers resigned last fall. His official appointment as superintendent by the board of directors came as a reward for capable and conscientious effort during his temporary regime.

Medical Botany of W. Va.

[EDITOR'S NOTE: The following report was made by a committee on medical botany of certain counties in West Virginia and submitted by Dr. A. S. Todd of Wheeling, chairman, at the meeting of the association held in Wheeling on June 1, 1869. It is reprinted in part here for its historical value.]

Report of the Committee on the Medical Botany of Certain Counties of the State of West Virginia by Dr. A. S. Todd, Wheeling.

At the annual meeting of the Medical Society of the State of West Virginia, held in the city of Wheeling, on the second and third of October, 1867, it was resolved, on motion of Dr. E. A. Hildreth, that a committee of one from each of the counties of the State represented should constitute a special committee, whose duty it should be to make an examination of the Medical Botany of their respective counties, giving the names and medicinal qualities of the most important indigenous plants, with the best method of administering them, and to report the same to the chairman of the committee at an early period.

To the respective members of this committee the chairman addressed printed circulars asking their cooperation in the work assigned them by the society, and to send their respective reports to him, direct, at as early a period as possible. But out of the whole number of committeemen only two responded. We hope that this subject in the future will be urged upon the consideration of the society from year to year, until it is better understood, and such measures adopted as will, in the end, secure the development of the botanical resources of the whole state. If it be true that there is in the vegetable kingdom of every country a remedy for the diseases of that country, then how important that the profession be so well acquainted with the science of Botany, as to be able to recognize on sight, or by analysis every plant, whether medicinal or not, that might happen to come under their observation.

Then, with this knowledge, and a disposition to use it, the resources of West Virginia, in her rich stores of indigenous medicinal plants, would in a comparatively short period of time be fully developed.

Our State with its diversity of surface, soil, and climate—its mountain ranges, its elevated table lands, its thickly wooded forests, and its deeply shaded glens, are in every respect peculiarly adapted to the growth and culture of almost every medicinal plant that can be found growing in any part of the United States.

Our State is rich not only in medicinal plants, but also in valuable ores, and in many of the precious metals. Why are they not developed? To whom can we appeal with so much propriety for the accomplishment of this great work as to the members of the medical profession? It is to the scientific, enterprising, live men of our State that we are to look, for the execution of this work. This is an interest worthy of their best and most untiring efforts. Send out then your geologists and botanists into this rich and inviting field, and keep them there until they have fully developed the wealth slumbering in our mountains, and until they have examined and classified carefully the flora of our rich and fertile valleys. This important work when completed will introduce a new era in the medical history of West Virginia, and one that cannot fail to add greatly to her wealth, comfort and prosperity.

Among the native plants covered in the report were Jamestown Weed, Thorn Apple, Jersey Tea, Bloor Root, Mandrake, Witch Hazel, Wild Cherry, Curled leaf Dock, Wild Senna, Cancer Root, Yellow Poplar, Dogwood, Butternut, Wormwood, Indian Tobacco, Spotted Cranesbill, Fever Bush, Indian Turnip, Blackberry, Jerusalem Oak, and Skunk Cabbage.

In concluding the report the committee hoped "that the Society will overlook the prolixity of this report and its many imperfections. As this is the first effort made by the Society in the direction of a report on the medical botany of the state, let us hope, that under the future auspices of the Society, the investigation will be continued, and vigorously prosecuted until all that is valuable in the medical flora of the state shall be fully developed.

A. S. TODD, M. D., *Chairman.*
Wheeling, June 1, 1869.

Gauley River Camp

The medical profession of West Virginia will undoubtedly be interested in the recent establishment of the new West Virginia Summer Camp for Boys by a group of business and professional men of Clarksburg, Buckhannon and vicinity. The camp is located five miles from Webster Springs, occupying 25 acres of land along the Gauley river on the scenic state highway between Webster Springs and Cowan. The camp is operated on a non-profit basis for the development of youth.

The camp is splendidly equipped with a gymnasium and recreation hall, a two-room school for study, and ten sleeping cabins each holding eight individual beds supplied with springs, mattresses and pillows. In addition, there is a well-screened dining hall, a work shop, and a first aid station. The West Virginia Camp for Boys also has its own electric light plant.

Recreation for the youngsters attending the camp consists of tennis, volley ball, kitten ball, baseball, hiking, swimming and a number of other games. A diversified program has been worked out to make sure that every boy will be occupied all day with useful things that he will enjoy, with the idea of directing rather than suppressing the youthful energy. The self-expression of youth is the goal toward which the camp is directed.

The camp is incorporated under the name of the Gauley River Camp School Association and was organized by Dr. D. P. Kessler, Senator E. H. Morton, Judge Haymond Maxwell, J. H. Brewster, George E. White, Judge Roy Waugh, G. O. Young, H. B. Curtin, C. D. Howard, S. L. Richards, A. B. Brooks, James Fitzgerald and William Trapnell.

Constitutional Changes

A number of proposed changes to the constitution and by-laws of the Medical Society of the District of Columbia should be of particular interest to the member of other state medical associations. Several of the changes outlined by the District of Columbia society

have never been tried out before and will probably be watched with no small amount of interest by some of the state organizations contemplating similar action.

In regard to membership, the District of Columbia society proposes to cut down the cost of membership to graduates in medicine admitted to their association who have been out of school less than two years. This reduction will remain in effect during the first two years of membership, after which it will be raised to the same figure paid by the other members. The same change also provides that any member who has remained as such for 40 consecutive years shall be absolved from the further payment of dues.

Another important change considered by the society would provide a nominating committee of five members to select candidates for the various offices. This committee would publish for the benefit of the society members the nominations made at least three weeks prior to their annual meeting. Other nominations could be made upon a petition signed by 10 members in good standing of the society.

Apparently the District of Columbia society has never taken up medical defense and a plan of medical defense almost identical with the plan now in use by the West Virginia State Medical Association is being considered. If the proposed changes work out successfully, a number of them will probably be adopted in the near future by other state associations.

Boone Health Official

Dr. G. W. Luckey, who was recently appointed director of the full-time health unit of Boone county, resumed his duties February 27. Dr. Luckey succeeds Dr. W. H. Enneis, who organized the health unit in Boone county in 1926. Dr. Enneis resigned recently to accept the position of city health officer for Knoxville, Tenn. Dr. Luckey comes to West Virginia from Albuquerque, New Mexico, where he has been in charge of the health work in Bernalillo county for the last four years.

Laryngological Congress

Eye, ear, nose and throat doctors of the world will meet for the first time at the First International Congress of the Oto-Rhino-Laryngological Society, to be held in Copenhagen, Denmark, July 29 to August 1. That was the announcement made by the American Committee of the Society, 25 Broadway, New York, recently.

More than seventy-five specialists will represent the United States at the congress. These doctors will also spend some time visiting at various cities in France, England, Germany, Norway and Sweden. Clinical discussions will be held in these countries with European doctors presiding.

The congress will concern itself with questions relating to the treatment of the many maladies, injuries and infections of the eye, ear, nose and throat. It has been reported from abroad that very successful methods have been found for sinus trouble and middle ear deafness.

Medical Ethics

We have previously called attention in our editorial columns to the fact that too often suits have been instituted for alleged malpractice based upon the comments and opinions given by physicians in criticism of the medical attendant who was in charge of the patient at the time. We have been advised of this in numerous cases by the attorneys bringing suit.

A recent instance may be cited of a primipara in charge of the attending physician, a general practitioner, who explained to the husband the difficulties experienced in the delivery and the reason why the baby was born dead. The husband was not satisfied and called at the office of an obstetrician to seek his opinion, giving the details as related to him. The obstetrician stated that he saw no reason why the baby should not have been born alive. The husband paid the \$20 office fee exacted, and deemed it only fair to seek another opinion. He consulted another obstetrician, who gave a similar opinion.

It seems almost unbelievable that any

physician would sell, let alone venture, any opinion in this manner. Here is a layman, with the mental anguish of losing his first-born, due to what he thought was faulty obstetrics, consulting two obstetricians, who based their opinions upon the statements made by the layman in an overwrought frame of mind. Neither obstetrician had heard the details from the medical attendant. Such action on the part of any physician cannot be too severely condemned.

It would seem justifiable, in any instance of this kind, when the charges are proved to be true, that said physician, if a member of a county medical society, should be made to show cause why he should not be dropped from membership. It may be that pitiless publicity may force a better observance of the principles of medical ethics.—*Atlantic Medical Journal*.

Liability of Hospitals

The Court of Appeals of Georgia, division 1, in affirming a judgment for damages in favor of the plaintiff, a Mrs. Smith, says that, ordinarily, an incorporated hospital, primarily maintained as a charitable institution, is not liable for the negligence of its officers and employees, unless it fails to exercise ordinary care in the selection of competent officers and employees, or fails to exercise ordinary care in retaining such officers and employees.

In the instant case the plaintiff (a pay woman patient), while undergoing a major operation in the defendant hospital, and while lying unconscious and helpless, was severely burned and permanently injured (the sight of one eye being practically destroyed) through the gross negligence of one of the defendant's anesthetists, who, while administering ether to the plaintiff, allowed it to come in contact with the plaintiff's face and eyes, thereby destroying her eyesight as stated, and severely burning her face, and causing her intense pain and suffering for many months. Under the ruling in the first paragraph and the facts of this case, the defendant hospital was not liable for the negligence of its anesthetist, unless it had failed to exercise ordinary care in

her selection. However, this court cannot hold that there was no evidence authorizing the jury to find, first, that the anesthetist was incompetent; and, secondly, that the defendant hospital had failed to exercise ordinary care in her selection. It was true that the petition failed to allege that the anesthetist was generally incompetent, or that the defendant did not exercise ordinary care in her selection. However, no demurrer to the petition was interposed, and those issues were raised by the evidence adduced, and were charged on by the court. The verdict in favor of the plaintiff was authorized.—*J. A. M. A.*

Vicious Legislation

The board of trustees of the American Medical Association has just announced that it is unable to support a bill to regulate the practice of the healing art in the District of Columbia, which is now pending in Congress. The announcement was made by Dr. William C. Woodward, executive secretary of the bureau of legal medicine and legislation of the A. M. A.

Radical changes made in the bill at the last moment were given as the cause of the withdrawal of the support of the board of trustees. Dr. Woodward pointed out that there was one provision in the bill setting forth that "osteopaths who at any time prior to the passage of the act, for any period whatsoever, have pursued their calling in the District are to be authorized to engage in practice as unlimited as is that of physicians." The bill further authorizes the licensing, without examination, of healers practicing in the District of Columbia when the bill is enacted or at some previous time.

The proposed legislation, according to the announcement made by Dr. Woodward, "aims simply to transmogrify the practice of osteopathy into the practice of medicine and to license osteopaths as practitioners of medicine, in fact, even though in terms merely practitioners of osteopathy. It is a bill to permit every graduate of an osteopathic school approved by the American Osteopathic Association, who can locate in

the District of Columbia for even a few hours as a practitioner of osteopathy, lawfully or unlawfully, before the bill is passed, to obtain without examination permanent rights to practice osteopathy on the basis just stated."

Medical Advice by Radio

Since February 4, 1922, the United States Public Health Service has been furnishing medical advice by radio to vessels at sea. The amount of this work has increased and the public health service has often rendered great assistance to vessels at sea in need of medical aid. Advice by radio is furnished from the United States Marine hospitals of the public health service, the Atlantic Coast being served from New York City, the Gulf of Mexico from Key West, New Orleans and Galveston, and the Pacific coast from San Francisco. On the Great Lakes, the Marine hospitals at Chicago, Cleveland and the relief station at Sault Ste. Marie give medical assistance by radio. The relief station of the public health service at Honolulu, serves ships in that vicinity, and those near Manila radio the relief station there for advice.

Book Reviews

Just off the press of J. B. Lippincott Company, Philadelphia is a text book on Physical Diagnosis by Professor Emerson of Indiana University School of Medicine. We recommend this work because of its many short and concise statements easy of comprehension by the students, as well as the busy practitioner.

The following quotation from the preface admirably states its value: "Physical diagnosis is, and doubtless will remain, the primary and the fundamental method of diagnosis. Every advance in scientific medicine makes its problems greater, therefore harder. This is our reason for presenting for approval to the medical profession a book which will try to reach the levels of medicine of today and to train the student to be ready to meet the problems of tomorrow."—C.A.R.

Medical Center Opened

A few days after the official opening day, on March 16, 1928, when the new Presbyterian Hospital building at the Medical Center in New York, was opened for inspection by the medical authorities, the Presbyterian Hospital of New York admitted patients to wards and private rooms, and out patients to the Vanderbilt Clinic. This building, the tallest hospital structure in the world, in which are housed the Presbyterian Hospital, the Sloane Hospital for Women and Squier Urological Clinic has an ultimate bed capacity of 1,177.

A few days before this date Anna C. Maxwell Hall, the residence of the Presbyterian Hospital training school pupils, was occupied by the incoming class of about fifty students. This is a 15-story H shaped structure having living quarters for 360 pupil nurses, an individual room with running water for each pupil nurse; a large swimming pool and recreation hall are features of the residence.

More Nostrums in W. Va.

A request for a directory of industrial physicians in West Virginia was recently received in the office of the executive secretary from Laboratories J.A.Q. of New York City. This directory was not furnished. Believing, however, that such a directory might be secured elsewhere by the Laboratories J. A. Q. and the West Virginia physicians circularized, it might be well to point out in advance the report of the bureau of investigation of the American Medical Association on this company, made in the November 26, 1927, issue of the *Journal*.

Laboratories J. A. Q. Inc., of New York City put out a tablet under the patent name of "Seeqit" that is supposed to relieve women when they are more or less indisposed during their menstrual periods. The company goes after business by circularizing large industrial plants that employ female labor, urging that the tablets be distributed among the female employees.

Although the properties of "Seeqit" are supposed to contain some newly discovered

preparation, an analysis by the chemical laboratory of the American Medical Association disclosed that the tablets were made up of amidopyrine, already well known to the medical profession. The "Seeqit" tablets sell at \$4.50 per one hundred. Plain amidopyrine tablets U. S. P. can be purchased at \$1.50 per hundred and serve the same purpose much better.

It is hoped that the industrial physicians of West Virginia will not be "taken in" by the elaborate circulars and claims of Laboratories J. A. Q.

Virginia Survey Report

The survey report on higher education in Virginia recently submitted to the governor includes these recommendations among others in specific relation to the Medical College of Virginia: That funds be provided to increase salaries approximately 20 per cent, to make possible more ample extension service, to supply a new laboratory for chemistry, pathology, and bacteriology and a building for clinical dentistry, and to develop research more generously. It also recommended that the college take over the state public health laboratory as now maintained by the state board of health and that the school of nursing be developed more generously on the side of pediatrics and obstetrics to make possible more affiliations in these subjects with the smaller hospitals in the state. There are other recommendations of a more general character.

Indigent Syphilitics

The Bureau of Venereal Diseases of the West Virginia State Department of Health will supply free drugs for the treatment of indigent syphilitics to any physician in the state provided the treatment is administered without charge, it was recently announced. Neo-salvarsan and mercury may be obtained from the bureau upon receipt of a requisition. Blank requisitions may be secured from the Bureau of Venereal Diseases of the health department at Charleston.

Medical Moving Pictures

The possibilities of medical movies have recently been brought forcibly to the attention of the profession in this country by Dr. J. F. Montague of the University and Bellevue Hospital Medical College Clinic. Dr. Montague delivered an able address on the subject before the conference of the National Board of Review on January 1, 1928, dealing with the subject from the standpoint of the medical profession and of public health.

Dr. Montague pointed out that the celluloid textbooks would not in any way supplant printed literature, but that instead, it would facilitate its rapid understanding. Medical movies, he said, would not only furnish a method of reducing the time required for medical studies, but would tend to relieve the present overcrowded medical curriculum. In connection with both of these points, he stated that medical movies would afford more time for the individual study of the actual practice of medicine in hospital and dispensary.

Another advantage of medical movies, and one that will appear as spectacular to the lay mind, is that such movies will do away with the necessity of extensive vivisection. In summing up, Dr. Montague states, "Utopian as it may seem, I firmly believe the film can serve as the emancipator of medical thought which even now is straining at the leash."

Mental Defectives

A modern hospital for mental diseases provides the means by which the inmates may lead a normal life, one of the elements of which is a good appearance in company. The *New York Times* of January 18, makes editorial comment on a report that the State Hospitals or Illinois have installed beauty parlors as a part of their therapeutic equipment. The editorial says:

"Insane though the clients may be, the parlors are well patronized. Few of the inmates are so far out of their minds as not to want to look their best. Some of them have

become so interested in the business of beautifying that they have qualified as skillful assistants. Already the new department has proved itself worth while as an aid in the recovery of patients displaying an interest in it.

"It is perhaps too soon to expect elaborate statistics and reasons for this improvement. Psychologists themselves have not always been quite clear on such subjects as whether we laugh because we are happy, or are happy because we laugh. If the latter is true, then the same logic would account for the fact that a woman fresh from the hands of a beauty specialist is nearer sanity than when she looks a dowdy frump. A properly prettified woman, hair bobbed and waved, skin glowing, nails immaculate, lips with a touch of rouge, certainly looks a sound, normal creature. And no doubt that helps her to feel so."

Such articles as this are of great value in educating the people regarding the true nature of life in a state hospital. They are quite willing than their kin should go to a hospital in which free beauty treatment is an example of the normal attention which the patients receive. An additional element in the hospital treatments is that the patient is free from the ragging and the razzing of the mother and aunt at home. If a woman wants to have her hair curled or her nails polished, she can do so without the annoyance of spying relatives.—*N. Y. State Journal of Med.*

Abortion Legalized

Russia, unafraid of experiment in government, has formed a commission for considering petitions of women who, for any cause, desire abortion. Eighty-three per centum of these petitions have received favorable action. In three years 55,320 authorized abortions have been done. In this great number there was no fatality. The operations are all free and are done in government hospitals. Within the same period the authorities of Russia learned of 66,675 abortions done by bunglers with 3,000 deaths.

Not satisfied with the results of its trial of free abortions, Russia is now more actively teaching birth control and is experimenting

with new methods of prevention. In all European countries there is increasing activity in teaching birth control. The United States is alone in forbidding the use of the mail to writings favorable to contraceptive methods. We, in a land of the free, practice the principle that the government must decide what the people may be permitted to know.—*Colorado Medicine*.

Thomas E. Peery, M. D.

Dr. Thomas E. Peery of Bluefield, widely known eye, ear, nose and throat specialist, died at his home early on the morning of May 27 following an illness of more than twelve month's duration. The deceased is survived by Mrs. Peery and three daughters, Mrs. W. B. Johnston and Misses Elizabeth and Virginia Peery.

Dr. Peery was born in Burke Garden, Va., on November 1, 1873 and was 55 years of age at the time of his death. He graduated in medicine at the College of Physicians and Surgeons at Baltimore and later engaged in general practice at Pearisburg, Va., for one year. Following this, Dr. Peery took a post graduate course in the Manhattan Eye and Ear Infirmary in New York and located in Bluefield in 1897 as a surgeon and eye, ear, nose and throat specialist, in which he attained a marked degree of success.

The deceased was successful in the highest degree, both as a business man and as a doctor. He was a large holder of Bluefield real estate and, until last December, was president of the Flat Top National Bank. He was also a director in a number of Bluefield business enterprises.

He was a member of the First Presbyterian Church, the Bluefield Elks' Club, the Bluefield Country Club and the various Masonic orders. Dr. Peery was also a member of the American College of Surgeons, a member of the American Board of Ophthalmology, the Southern Medical Association, the Mercer County Medical Society, the West Virginia State Medical Association and the American Medical Association.

In both the Mercer County and the West Virginia State Medical Association, Dr.

Peery was always an ardent supporter and active worker and he leaves a host of warm friends and admirers in the profession throughout the state.

One Hundred Percent

The Doddridge County Medical Society was the first component society in West Virginia to report dues one hundred percent paid up. This report was made on March 26 by Dr. A. Poole of West Union, secretary of the Doddridge organization. Accompanying the report from Dr. Poole was a check covering the total amount of the dues from each member. Although the Doddridge County Medical Society is one of the smaller component groups of the West Virginia State Medical Association, their achievement is none-the-less a creditable one.

The Country Doctor

If you can set a fractured femur with a piece of string and a flatiron and get as good results as the mechanical engineering staff of a city hospital at 10 per cent of their fee;

If you can drive through ten miles of mud to ease the little child of a dead beat;

If you can do a podalic version on the kitchen table of a farm house with husband holding legs and grandma giving chloroform;

If you can diagnose tonsillitis from diphtheria with a laboratory forty-eight hours away;

If you can pull the three-pronged fishhook molar of the 250 pound hired man;

If you can maintain your equilibrium when the lordly specialist sneeringly refers to the general practitioner;

If you can change tires at 4 below at 4 A. M.;

If you can hold the chap with lumbago from taking back rubs for kidney trouble from the chiroprac;

Then, my boy, you are a Country Doctor.
—By W. H. Davis, from the *Kansas Medical Journal*.

WOMAN'S AUXILIARY

Kanawha Auxiliary

A meeting of the Woman's Auxiliary of the Kanawha Medical Society was held on February 21, at the home of Mrs. B. S. Preston in Virginia street. Following a short business meeting, two interesting papers were read by members of the Auxiliary. Mrs. A. L. Amick read a paper on S. Weir Mitchell and Mrs. R. B. Price on Walter Reed. A large attendance turned out for the February meeting.

Hygeia Campaign

Mrs. J. P. Lilly of Morgantown, state *Hygeia* chairman, has requested that the president of each county auxiliary report to her as soon as possible on the progress of *Hygeia* work. Mrs. Lilly has also announced that special rates are being allowed the auxiliary during the month of April and she has urged that renewed efforts be put forth to secure *Hygeia* subscriptions during this month.

Harrison Organizes

Mrs. Robert C. Hood of Clarksburg was elected president of the new Woman's Auxiliary organized in Harrison county on the evening of February 16 by Mrs. B. S. Preston of Charleston, the state president. The other officers selected for the new auxiliary were Mrs. D. P. Cruikshank of Lumberport, vice president, and Mrs. B. Steele Brake of Clarksburg, secretary-treasurer.

Following the election of officers, Mrs. H. A. Whistler of Clarksburg was selected as *Hygeia* chairman, Mrs. R. L. Osborn as chairman of the program committee, Mrs. J. E. Corbin as chairman of membership and Mrs. J. T. Brennen of Clarksburg as chairman of the social committee.

Fairmont Plans

If present plans materialize, the Woman's Auxiliary will put on an historical exhibit at the annual meeting of the West Virginia State Medical Association to be held at Fair-

mont on May 21-24 inclusive. Mrs. B. S. Preston of Charleston, the state president, is considering the arrangement at the present time and hopes to secure the cooperation of the state department of archives and history. If the department of archives is willing to allow the auxiliary the use of some of their relics of the early practice of medicine in West Virginia, then the exhibit will undoubtedly be undertaken.

Plans for the auxiliary meeting in connection with the state convention have been practically completed and the various sessions will be held in the Fairmont Y. M. C. A. building. A record auxiliary attendance is looked for at the Fairmont meeting. As a side diversion, there is some talk of a bowling tournament for the auxiliary members.

Secretaries' Report

Mrs. Preston has requested that the secretaries of all of the local auxiliaries send in their membership reports as soon as possible. In making up these reports, the state president has again called attention to the necessity of using the husband's initials rather than the given names of the auxiliary members.

Local Tribute

The following quotation, taken from "*The Journal*," the official organ of the Woman's Auxiliary of the American Medical Association, will show better than anything else just what the profession thinks of the auxiliary in this state:

I take great pleasure in endorsing the work and activities of the Woman's Auxiliary of the American Medical Association. I have personally observed the great good they are doing in their social groups in bringing together physicians and their families, where they may become acquainted and know each other when they meet on the streets.

The educational group is doing a wonderful work in familiarizing people with health laws and how to take care of themselves when they are well. There has been nothing done for years which has so stimulated doctors to observe and live up to the rules of medical ethics as the community and social gatherings of the Woman's Auxiliary.

I hope the good work will continue, from which a great benefit to all will come.

C. A. RAY, M. D.,

Editor, State Medical Journal, Charleston, W. Va.

The West Virginia Medical Journal

Directed and Edited by the Committee on Publication

[The Committee on Publication is not responsible for the authenticity of opinion or statements made by authors or in communications submitted to this Journal for publication. The author or communicant shall be held entirely responsible]

JAMES R. BLOSS, *Editor-in-Chief* - - - - - Huntington

ASSOCIATE EDITORS:

WALTER E. VEST
Huntington

HARRY M. HALL
Wheeling

J. HOWARD ANDERSON
Martown

C. A. RAY
Charleston

MR. JOE W. SAVAGE, *Secretary-Business Manager*, Charleston

Entered as Second Class Matter, January 1, 1926, at the Postoffice at Charleston, West Virginia

Volume XXIV

APRIL : 1928

Number 4

THE MECHANISMS OF NORMAL DIGESTION AND THEIR SIGNIFICANCE*

By A. C. Ivy, M.S., Ph.D., M.D.

(From the Division of Physiology and Pharmacology,
Northwestern University Medical School)

INTRODUCTION: Everyone who reads and thinks is cognizant of the wonderful advances in the Sciences of Chemistry and Physics. These advances have permeated our social and industrial life to such an extent that at present they are indispensable. Their sudden withdrawal would result in social and industrial chaos. Every industry of any importance is based upon the use of a series of wonderful chemical and physical processes, so wonderful that the unspecialized mind is mystified and exclaims, what will be done next! Yet, when we stop to consider the numerous and complex processes that occur in the digestive canal of the living organism, industrial processes become simple and less significant.

A large majority of the chemical elements in many combinations enter the digestive canal, and are subjected to known and unknown chemical and physical processes. Various complex reagents, or digestive

juices, are secreted which have a specific action on the food materials rendering them capable of being absorbed and of maintaining the processes of life. It is with the causes and mechanisms of formation of these complex reagents, or digestive secretions, that I and my collaborators have been and are chiefly concerned.

Gastric Secretion: Experiments have demonstrated that gastric secretion can be divided into three phases depending on the site at which the stimuli are acting: (1) the cephalic phase, (2) the gastric phase, and (3) the intestinal phase.

The cephalic phase of gastric secretion is caused by the sight, taste and smell of food. The impulses pass via the cerebrum, thalamus, mid-brain, medulla and vagus nerves to the stomach. Even the suggestion of appetizing food during hypnotic sleep will cause the glands to secrete.

The gastric phase of gastric secretion is due to the mechanical distention of the stomach by food and to the action of chem-

* An original paper written especially for the West Virginia Medical Journal.

ical substances either in the raw food or produced by the digestion of the food.

The intestinal phase of gastric secretion is caused by the action of chemical substances produced during digestion. The digested food products as well as amines produced by bacterial action excite the gastric glands by acting via the intestine.

We were enabled to study the gastric and intestinal phases because it was possible for us to make a pouch of the entire stomach with the vagi cut. This was done by sectioning the stomach from the esophagus and duodenum, closing one end and bringing the other end to the outside, and then suturing the duodenum to the esophagus. In such a preparation it is possible to separately study the effect of substances entering the intestine and the effect of substances applied to the pouch of the entire stomach. Such animals change their habits of eating immediately, *i.e.*, they do not bolt their food. Raw meat is very irritating to their intestine and is not digested. Cooked meat is not irritating. The interesting observation was made that some of these animals develop an anemia several months after the operation, which we have been able to cure and prevent by the administration of cod liver oil and iron (ferric citrate). This preparation makes it possible to study the effect of the prolonged absence of gastric secretion on the organism. We have noticed that hot weather is very hard on these animals. We believe that this is due to the absence of the bacterial sterilizing action of gastric juice, the bacteria growing more rapidly in the food in the food-pans during hot weather than during more moderate weather.

By transplanting a small gastric pouch under the skin and by observing that it secreted gastric juice when the animal was fed, we were able to prove that when we eat, something gets into the blood which stimulates the gastric glands.

Normal sleep promotes the flow of gastric juice because mental activity inhibits the gastric glands. Worry, "nerve strain," unpleasant sensations, markedly inhibit the secretion of the stomach, and cause disturb-

ances of the motility of the entire gastrointestinal tract.

Pancreatic Secretion: The pancreas produces the most important digestive secretion, because of the completeness and diversity of its action. Our present knowledge shows that it can be divided into two phases: (1) the cephalic phase and (2) the intestinal phase.

The cephalic phase is due to the sight, smell and taste of food. However, the secretion that results is meager in quantity when compared with that which occurs in the stomach.

The intestinal phase, which is very important, is caused by the action of gastric juice, bile, and digested food acting in the intestine.

By transplanting the tail of the pancreas and a loop of the intestine under the skin in the same animal, and observing a secretion of the pancreatic transplant when substances were applied to the intestinal transplant, we have proven that a hormone is concerned in the secretion of pancreatic juice.

Fortunately for our health, the pancreas is apparently less subject to inhibitory nerve action than the gastric glands. However, physical and mental distress does cause a decrease in the response of the pancreas to stimulating agents. If the pancreas does not secrete its digestive juice, grave digestive disturbances result.

Gall-bladder: It is well known that bile plays an important role in normal digestion, but its elimination from the biliary passages has not been thoroughly understood primarily because the function and physiology of the gall-bladder has not been completely settled by crucial experiments.

Some believe that the gall-bladder never empties, *i.e.*, the bile that goes into it is absorbed and reexcreted by the liver. Some believe that during the interdigestive period no bile flows into the intestine, and that the bile that is formed during this period is stored in and concentrated by the gall-bladder. That the gall-bladder concentrates bile, I believe, is thoroughly established. The storage and concentration of the bile by the gall-bladder, it is believed, serves to

regulate the pressure in the biliary passages and to hold in readiness a supply of bile, to start off intestinal digestion at the next meal. Some believe that the gall-bladder empties itself by actively contracting, while others believe that it is emptied passively by suction produced by movements of the duodenum or by the flow of liver bile past the opening of the gall-bladder duct. It is highly probable that if we knew more about the physiology of the gall-bladder, we would be able to prevent the occurrence of gall-stones.

It is now well established, I believe, that fats, egg yolk, cream, acids and meat protein cause the gall-bladder to empty at least partially. How these substances cause the gall-bladder to empty is not known.

Because these substances are potent excitants of the pancreas, and since it is possible to extract a substance from the intestinal mucosa which stimulates the pancreas to secrete, it occurred to us that a substance might be extracted from the intestinal mucosa which would cause the gall-bladder to empty.

We have found that a purified extract of the intestinal mucosa will cause the gall-bladder to contract and empty. If 0.4 per cent HCL acid, or 2 per cent butyric acid is placed in the duodenum, the gall-bladder is caused to contract. If two compatible dogs are prepared for a carotid to carotid cross-circulation experiment, with their gall-bladder duct clamped to a pressure recording apparatus, and then 30 or 40 cc. of 0.4 per cent HCL acid is introduced into the duodenum of one of the pair, the gall-bladders of both animals will contract. The gall-bladder of the one receiving the acid contracts within two minutes and the other contracts about eight minutes later.

These observations strongly suggest, if they do not prove, that the gall-bladder is caused to contract and to empty at least in part by a hormone, which is secreted into the blood stream when certain substances part by a hormone, which is secreted into contact with the upper intestinal mucosa.

Succus Entericus: The secretion of juice by the cells of the intestinal mucosa is an important digestive reagent, but is less

potent than that of the pancreas. Its secretion is excited chiefly if not entirely by local mechanical and chemical agents in the intestinal contents. Further than this we know very little about it.

Concluding Remarks: The most immediate and important problem that confronts us at the present time is the isolation in pure form of the hormones or chemical excitants of the mechanisms concerned in elaboration and elimination of the gastric juices. The practical uses of "gastrin," the gastric secretory excitant, of "secretin," the pancreatic secretory excitant, and of "cholecystokinin," the gall-bladder excitant are too numerous to mention.

The relation of normal digestion to the prolongation of life, "increased efficiency and well-being," is too obvious to discuss. In closing, I desire to recommend and to urge that the non-manual laboring public be taught to think of their food and pleasant things while eating, to eat lightly of easily digested food prior to and during a day fraught with "business worry," "mental or nervous strain," and anxiety, and to eat bountifully only when the meal can be followed by several hours of leisure and relaxation, free from the nervous inhibitory impulses which deleteriously effect the formation of digestive juices and gastro-intestinal mobility.

Etiology and Results of Treatment in Angioneurotic Edema and Urticaria. The experience gained in the study and treatment of 260 cases of angioneurotic edema and urticaria is related by Frank R. Menagh, Detroit (*Journal A. M. A.*, March 3, 1928). No distinction is made between these two disorders. It is assumed that they are the same process, involving in the case of urticaria the superficial layers of the skin, and in angioneurotic edema the subcutaneous tissues. These cases have been classified into two major groups, according to etiology. In one group comprising 30 per cent of the series, in which there was entire freedom from biliary tract disorders, the etiologic factors were the absorption of food and other foreign proteins. In the second group, comprising 48.8 per cent of the series, biliary tract disease was the only etiologic factor.

THE INTERPRETATION OF THE ANO-RECTAL COMPLAINT*

By C. C. MECHLING, M. D.
Pittsburgh, Pa.

THE interpretation of the ano-rectal complaint depends on a thorough understanding of the embryology and the functions of the anus and the rectum. In this respect, the complaint differs in no way from the symptoms referred to the other organs of the body.

Embryologically: the rectum is derived from the hind gut which in the fetus is the blind end of the colon not communicating with the skin. A few months before birth, a small area of the perineum, called the dimple, becomes depressed and progressively more so until the advancing blind pouch of hind gut and the anal dimple join by the progressive absorption of the intervening tissue. In most cases this absorption is complete, failing partially or completely in about one out of 10,000 births. This failure is known as imperforate anus. In the adult that part of the canal known as the anus, is about one and one-half inches long and is derived from the ectoderm, or skin. It is usually firmly contracted, but may be dilated to nearly an inch in diameter without discomfort. It is lined with a single layer of low cuboidal cells, has no sweat glands nor hair follicles, but is supplied with many sensory nerve terminals and is very sensitive. It is encircled with an important voluntary, and a less important involuntary muscle comprising the organs of fecal control. The external sphincter ani muscle is derived embryologically from the same muscle plate as is the levator Ani. Naturally their nerve supplies come from the same source. They contract and relax in unison. They should always be thought of together.

The rectum is the lower end of the colon, that part which is fixed in the hollow of the sacrum, surrounded in part with peritoneum,

but having no mesentery. It is about five inches long from the upper limit of the anus, the pectinate line, to a point opposite the body of the third sacral vertebra. It is lined with columnar celled mucous membrane. There is a definite line of demarcation between the rectum and the anus, called the pectinate line or dentate border. Its name is descriptive. This line carries eight to eleven small sensitive points or pectins, and may be readily identified thereby. This important line is a division or watershed between the lymph, circulatory and the nerve systems of the body. It divides the lymph vessels which drain in the inguinal group from those draining into the mesenteric glands. External to this line the nerve supply is derived from the spinal system, while the parts superior to it are supplied by sympathetic nerves. It is a fixed point in prolapse of the rectum, beyond which prolapse cannot extend. All parts below this line may be easily seen. It is the dividing line between visceral disease and perineal disease; between pink mucous membrane and pale skin; between catarrhal and skin diseases; the symptoms of tenesmus and neuralgia; between internal and external hemorrhoids. Pruritis ani extends only to this line. Tactile corpuscles are found only up to this line. About 85 per cent of all pathology is found in this line, and it may easily be reached with the examining finger. When pain is complained of, its source is to be found external to the pectinate line.

The commonest anal lesion producing pain is the so-called fissure. It is found high up in the anal folds and is always to be seen as a round or oval ulcer, when the fold is flattened out. It is often termed "painful piles." Muscle spasm always accompanies the pain and aggravates it. The sphincter

* Read before the West Virginia State Medical Association at White Sulphur Springs on June 23, 1927.

ani and the levator ani are both involved. The ulcer may be found at the anterior position, but much more frequently at the posterior position. This fact makes the search for it very simple. There is usually a skin tab to be seen immediately external to it. This tab is composed of scar tissue and feels hard to the touch. If the examining finger is passed into the anus it will generally detect an hypertrophied anal papilla immediately above the ulcer. The muscle spasm is a reflex phenomenon, and sympathetic reflexes may also produce spasm of the ileo cecal, the pyloric and also the cardiac sphincters, with the accompanying retardation of the alimentary contents. A prominent surgeon teacher once acknowledged having done four gastro-enterostomies for relief of pyloric retention, but without success and to later discover a chronic anal ulcer in each case. Bladder retention may be a result. The reflex centers for both the anal and the vesical sphincters are located in the lumbar cord at the level of the third vertebra. In fact all the branches of the sacral plexus may be involved, and pain and muscle spasm be distributed over the wide area of its distribution. As a result of the excessive activity of these two ani muscles they become hypertrophied, and when contracted the normal appearance of the anus is much changed. The external skin tag, the ulcer, and the polypus just above, have been termed the triad—peculiar to "fissure." To these might be added very appropriately, the muscle spasm.

The far reaching effects of a small ulcer placed in the sensitive anal canal immediately within the grasp of a powerful muscle can thus be easily understood. This small ulcer with its abraded surface, exposed to trauma and fecal soiling, is the usual portal of entry for pyogenic bacteria, which are carried off by the lymph stream into the large fat spaces adjacent to the anus. There are developed the different abscesses for which the peri-anal region is noted. The post and space, the ischio rectal fossae and the submucous areolar tissue are the sites most frequently affected.

Above the pectinate line the mucous membrane is folded longitudinally. The folds

are known as the Columns of Morgagni. The depressions between the columns which extend into shallow pockets below and behind the pectinate line, are the Crypts of Morgagni. The columns contain the pool like beginnings of the superior hemorrhoidal veins. These frequently become varicosed in individuals who strain heavily, either at defecation, in child birth, or at work. Clusters of these varicosities are termed internal hemorrhoids. The varicosed masses partially obstruct the anal orifice. The lower rectum is a funnel shaped organ. The fecal mass is collected for the greater part of the 24 hours in the pelvic colon. After a full meal, generally after breakfast, the fecal mass is rushed into the rectum and this gives rise to the defecation desire. The anal muscles are dilated by the mass under pressure and a great back pressure is developed in the hemorrhoidal veins placed just beneath the mucous membrane. Hemorrhoids are developed in this way. These veins penetrate the muscle layer about two and one-half inches above the pectinate line. When the muscle fibers contract, a valve-like effect is produced. This is the only semblance of a valve in the entire portal system.

When hardened feces is passed, bleeding results. It is not accompanied by pain, as this area is not supplied with spinal nerves. Painless bleeding means internal hemorrhoids.

When bright blood appears, one may rightly believe its origin to be in the lower rectum. Clotted blood has its origin in the colon. Tarry or digested blood has leaked from the mucous membrane of the stomach or the small intestines. The first stage of hemorrhoids is bleeding. After some months development, an increase of varicosity and hyperplasia of the connective tissue may permit of prolapse at stool, but this usually returns within the sphincter's grasp spontaneously—the second stage. The bleeding is less. Later the hemorrhoids will prolapse still more easily and will require digital replacement—the third stage. They do not bleed in the third stage.

Hemorrhoids are usually three in number, and have a constant location. One is found at the right, one at the left and an-

other at the anterior or perineal position. There may be other secondary hemorrhoids at times, but their appearance is unusual. The blood in the veins always remains fluid and hence reduction may be easily accomplished by elevation of the hips, by pressure, or by digital manipulation, or by a combination of these procedures. These fixed locations are determined by the terminal distribution of the inferior mesenteric artery. When these three primary hemorrhoids are removed by operation, the patient may be assured that his hemorrhoids will not come back. To effect permanent relief from the prolapse and bleeding, obliteration or removal of the vein must be done. If the varicose veins be removed at the right, the left and the anterior positions and from the pectinate line upward two inches, there can be no recurrence. The so-called cure obtained by electrolysis or by the injection

of escharotics or coagulants is effective at times, but recurrences are common. A second "cure" may be required. Surgical removal is the logical treatment. Since this may be done quickly and painlessly under local anesthesia, it would seem to be unwise and unfair to begin a cure with an uncertain method, which is at times painful and danerous.

Certain hemorrhoids may occur below the pectinate line. These cause pain. The onset is always sudden, and they are due to strain on the peri-anal tissues, usually caused by the passage of dry stools. The blood coagulates. They cannot be reduced. Any manipulation usually produces more hemorrhage and consequently more pain and larger size. They are known as external thrombotic hemorrhoids, and may appear at any place on the anal circle. The treatment is always surgical.

PREVENTION OF SHOCK IN EMERGENCY SURGERY A PLEA FOR ADEQUATE FIRST AID PRIOR TO ENTRANCE TO HOSPITAL*

By E. BENNETTE HENSON, M. D.
Charleston, W. Va.

ALMOST daily we are receiving injured people in hospitals in varying degrees of shock, which to a large measure could be prevented if they were given proper first aid before being transported. We have fully entered into a new era in our professional life. This new era affects the doctor in the remotest village as well as the specialist in the largest city. In looking backward since the close of the World war I am amazed at the difference in the type of injuries encountered then and now. Machines and machinery have produced this change and every doctor is often confronted with serious and perplexing injuries. We seldom saw fractures of the scapula ten years ago, yet in the past two years I have seen ten. Fractures of the sternum were

to me very rare; in the past year I have treated four. Fractures of the pelvis were encountered almost entirely in the coal fields, but today they receive daily mention in the newspapers in the reporting of automobile accidents. The same is true of fractured skulls. Before the World war it was saloon, whiskey, fight, cracked skull; today it is auto, gas, speed, cracked skull. The latter outnumber the former. A contused and rigid abdomen meant almost always a mule or horse as the cause and were usually encountered in the spring of the year, but the rigid abdomen is no longer seasonal. The foot of the mule on the abdomen has given way to the foot of the fool on the accelerator and the fool is with us always.

Those of us who encounter these injuries in the hospital realize that there is a very unfortunate angle to this change, and one

* Read before the Fayette County Medical Society, December 6, 1927.

that the public must be made to understand. The hospitals are having those injured literally dumped in their doorways by friends, who have rushed them madly over many miles of rough roads, passing perhaps a dozen doctors en route, yet not stopping to have any first aid rendered, reaching the hospital with the patient in a deplorable state. The number of emergencies being admitted to the hospital without having first seen a doctor is on the increase. Last year I wrote an article for the *West Virginia State Medical Journal* calling the profession's attention to the reckless driving of ambulances as the chief factor in producing shock. I want to again decry this mania for rushing patients to the hospitals before proper first aid is rendered. The death rate of the best hospitals is high enough without this added burden.

The sternum is fractured by the sudden force of chest upon the steering wheel of the automobile, and is often immediately fatal. It is a serious injury and the patient should not be transported without some fixation of the chest. Often the only way to relieve the condition is by hyperextending the spine with the arms above the head. When the sternum is torn from many ribs it may become necessary to pass a strong suture through the periosteum of the sternum and use traction to keep the sternum from compressing the heart and lungs. Recently a prominent man lived to be brought about twenty miles to the hospital to die within five minutes with this fracture unseen by a doctor. If he had been kept at the scene of the accident and the doctor had been called to him his life would probably have been saved.

Fractured skulls are seldom operated upon immediately upon entering the hospital, so why the rush in getting them there? The surgeon demands, and rightly so, sufficient time to combat shock, and determine the extent of the injury. If there is an open wound it is carefully cleansed and warm compresses applied until such time as it is deemed safe to operate. If the fracture is not compound, it may not become necessary to operate at all. In any injury to the head we look for hemorrhage and it is important

that the patient be kept as quiet as possible in order to lessen the chance for additional hemorrhage. To place them in an automobile and rush them to a hospital may produce additional hemorrhage and cause profound shock.

In fractures of the pelvis shock is increased by the present method of transporting these patients. When it is thought that the pelvis is fractured, a band should be placed tightly around the pelvis at the trochanter. The method I employ is to take a six-inch strip of heavy sheeting and tie it fairly tight around the pelvis and then tighten this by a Spanish windlass. I have seen men die of this injury that I believe would have lived had they been given this support before being jolted around.

In the treatment of fractures of the thigh and hip, the medical profession learned the value of traction in the prevention of shock during the World war, but the public at large has not been taught this valuable lesson. During the past ten months, I have treated thirty fractures of the thigh and only two of these cases were properly prepared for transportation to a hospital. About ten days ago a boy was rushed thirty miles over rough roads to the hospital with a simple fracture of the thigh dangling in all directions unprotected. The undertaker called for him within a few hours after reaching the hospital. The Thomas splint is easily made by any blacksmith and should be in every doctor's office to be used on every fracture of the thigh immediately. No injured person with a fractured femur should be moved without firm traction being constantly applied to the injured thigh.

The immediate management of open wounds is many times a most difficult one. I have a horror of the tourniquet and when I see a patient wearing one I want to run. In the days of Hippocrates they knew enough to look for a bleeder and tie it off, while today we act the coward and insult the large artery and vein, just because we are afraid to hunt for a small artery or vein that is doing the bleeding. As a matter of fact when we apply a tourniquet to an extremity to control hemorrhage we are placing that entire extremity in jeopardy. We

have learned by experience that a tourniquet is a dangerous method of controlling bleeding, and should be used with caution. The reason I mention the tourniquet is because I see so many patients with trivial wounds sent in to the hospital with a tight inelastic tourniquet applied a great distance from the wound, and sad to relate the one applying the tourniquet gives no instructions in the removal of it. When it becomes necessary to apply a tourniquet to control bleeding make sure that someone is sent with your patient with enough intelligence to release it every thirty minutes and reapply it above or below its original sight. If you fail to have this done you may find gangrene of the limb at the end of the journey. I have knowledge of two such accidents and many such near ones.

The immediate treatment of the traumatized abdomen demands of the physician all of his knowledge, skill and experience combined to properly estimate the damage wrought within. When we encounter such injury we should place the patient flat of back, give the necessary orders for immediate relief and then exert our professional right to demand the detail account of the injury so that we may examine the abdomen with a better understanding. We have been trained in similar schools and the first aid

treatment should be similar so why not use that knowledge and not be stampeded into doing things we know we wouldn't want done to us; above all, do not send that patient to a hospital until a diagnosis has been made and first aid rendered accordingly. Here again the surgeon demands time to study the case after it arrives at the hospital so why rush so at the other end of the line. Shock will have to be combatted somewhere sometime and the best place is at the scene of the accident. It is true that hemorrhage into the abdomen is a serious condition, and should be controlled promptly, but the modern injured abdomen is seldom one of hemorrhage but of a ruptured viscus. One or two hours delay is not criminal neglect but on the contrary often a life saving procedure.

As I said in the beginning the public will have to be taught proper first aid and above all they must learn that the doctor at the scene of accident is worth ten hospitals during that agonizing hour after the accident.

I have not told you anything new, but I hope you will go away feeling that the hospital surgeons are ever ready to back you in demanding that you be allowed to render proper first aid prior to transportation to hospital.

DIET IN NEPHRITIS AND IN GALL BLADDER DISEASE*

By MILTON C. BORMAN, M.S., M.D.
Montgomery, W. Va.

THE PROBLEM OF DIET in health and disease would be simpler, no doubt, if we knew not only all the changes undergone by each molecule of food from the moment of its ingestion until its inclusion into the cells of the body, but also the part played by each body cell involved in the handling of those molecules of food.

Let us glance quickly at our present knowledge of what happens to the food we eat. For convenience, foods are grouped

into three general classes: proteins, carbohydrates, and fats. Proteins are broken up by the enzymes in the gastro-intestinal tract into amino acids which are absorbed as such and carried to the cells throughout the body. The body cells, also essentially protein, select from the amino-acids passing by them those which they are able to utilize in reconstructing themselves. The rejected food amino acids as well as those liberated by the tissues during their own disintegration pass on, and are split into two portions, one represented by ammonia and excreted as urea,

* Part of a symposium on diet read before the Fayette County Medical Society at Oak Hill, W. Va., on July 14, 1927. From Coal Valley Hospital, Montgomery, W. Va.

the other represented by the remainder of the amino acid molecule and oxidized to produce energy. The liberated ammonia unites with available acids to form neutral ammonium salts, usually ammonium carbonate. A small portion unites with other acid radicles such as chlorine to form ammonium chloride. The ammonium carbonate becomes urea whereas the ammonium chloride is excreted in the urine. In the ordinary diet man excretes somewhat more than 90 per cent of his total nitrogen as urea and about 3 per cent as ammonium, the remainder appearing as uric acid, creatine, creatinine, and undetermined nitrogen.

It has been observed that after experimental nephrectomy, animals live a short time during which there is a piling up of urea in the blood. In itself, urea is relatively innocuous except in large amounts. The amount of urea in the blood, however, is comparable to the amount of other products unknown at present which are toxic. If the nature of this toxic material were known it is possible that there would be no such medical enigma as the "Riddle of Uremia".¹

Clinically, we have observed the beneficent effects of low salt intake in hypertension cases other than nephritic in origin. For example, in the early toxemia of pregnancy, the cause of which is unknown, the first sign is usually the rise in blood pressure. These patients can often be carried along safely to term by a salt free diet. We are uncertain by what mechanism this is accomplished.

It has also been observed that high protein feeding acts as a diuretic. Further, Dr. Allen in partially nephrectomized animals has been able to produce clinical evidence of nephritis by feeding large amounts of protein or large amounts of sodium chloride.

What practical information may be gained from these facts? Obviously, in a patient with kidneys partially damaged it is advisable in general to withhold salt and protein. We have been warned, however, not to restrict too rigorously the protein intake in such patients over a long period of time because a certain amount of protein is essential to prevent starvation. I have never seen any convincing evidence that too

rigid restriction of sodium chloride could produce harm.

Carbohydrates are converted by digestive enzymes into the monosaccharides, glucose and levulose, in which form they are absorbed into the portal circulation. A certain amount of carbohydrate is converted by intestinal bacteria into lower fatty acids and gases such as methane and carbon dioxide. When a large amount of cane sugar is present in the food it is absorbed as such and is excreted unchanged in the urine. In carbohydrate metabolism therefore we observe the production of a small amount of lower fatty acids and dextrose which may be excreted by the kidney. This suggests the advisability of not using carbohydrate in great excess in order to avoid overfunction of the kidney in the excretion of these substances.

Let us now consider fat metabolism. Neutral fats in our food are attacked in the intestines by enzymes splitting them into glycerol and fatty acids, which are absorbed by the intestinal epithelium and resynthesized to form neutral fat which passes into the lymphatics, thoracic duct, and blood stream. Some of the fat may be stored to be utilized when needed for energy. All of it before utilization passes through the liver which renders it more easily available for use by the tissues. In the tissues, the prepared acids are burned through the free oxygen and that derived from carbohydrates into carbon dioxide and water. The lack of oxygen or carbohydrate causes a stop in the oxidation of the fatty acid chain when four carbon atoms still remain unbroken. This acid is known as butyric acid ($\text{CH}_3\text{-CH}_2\text{-CH}_2\text{-COOH}$). Its first oxidation product is β oxybutyric acid ($\text{CH}_3\text{CHOH-CH}_2\text{-COOH}$). This further oxidizes into acetoacetic acid ($\text{CH}_3\text{-CHO-CH}_2\text{-COOH}$) which on still further oxidation yields acetone (CH_3COCH_3). These substances appear in the urine during carbohydrate starvation, *eg.*, in diabetes, and produce the condition known as "ketosis."

From these facts, we learn of the advisability in nephritis to give the patient plenty of oxygen, free as well as that locked up in the form of carbohydrate to avoid the

accumulation of fatty acids, the excretion of which throws an additional burden upon the kidney.

Water in diet is largely excreted by the kidneys, gastrointestinal tract, in respiration, and perspiration. It effects dilution of products excreted by the kidney which might be toxic in a concentrated form and serves as a diuretic. In parenchymatous nephritis where the tubular epithelium is diseased, if there is retention of water in the tissues, fluids should be restricted.

In general, therefore, in the presence of nephritis it is advisable to withhold sodium chloride, to feed a minimum of protein, plenty but not a large excess of carbohydrate, and avoid an excess of fat. If we err at all in the preparation of such a diet it should be in providing an excess of easily assimilable carbohydrate. Fluid intake should be restricted in parenchymatous nephritis, and should be pushed moderately in the other types of nephritis. Epstein⁸ in recent years has successfully used a high protein diet in that particular group of nephropathies now designated as "nephroses."

Unfortunately, our knowledge of the exact manner in which the kidneys function is far from complete. In general, filtration by the glomeruli with specific reabsorption and possibly excretion by the tubules is accepted. The gross morbid appearance of kidneys, however, cannot be foretold with any degree of accuracy from clinical findings. When the normal and abnormal physiology of the kidney as well as the pathological changes undergone by that organ are understood there will have been made a great step in advance in our handling of patients with kidney disease.

Diet in Gall Bladder Disease. Here again we enter disputed territory for knowledge of the function of the gall bladder is still incomplete. I believe, however, that we are able to accept the following: the gall bladder acts as a reservoir for bile, concentrating the latter by absorption and contracting at certain stages of digestion forcing the bile down the cystic duct into the duodenum, where the bile is so essential in the digestion and absorption of fats. Boyden² first

noted what he considered to be emptying of the gall bladder after high fat intake. This work has recently been verified by Higgins and Mann³ at the Mayo Clinic.

There is normally a back-flow of duodenal contents into the stomach which is increased by the ingestion of fats. Likewise, gastric tone and motility seems decreased by the ingestion of fats. Further, the fatty acids resulting from pancreatic digestion stimulates the bowel. This upsets the normal gradient as outlined by Alvarez⁴ producing stagnation of the stomach contents. This may be aggravated by a focus of infection whether it be appendix, internal genitalia, gall bladder, or a diverticulum. Dr. Charles Mayo⁵ suggests that the possible sequence of gall bladder disease may be: 1 spasm of sphincter of Oddi due to some unknown cause, perhaps by food deficiency or toxins. (2) Overwork in the function of filtration of the gall bladder. (3) Inspissation of bile. (4) Altered nutrition in gall bladder tissue due to circulatory changes secondary to spasm. (5) Bacterial changes, the type of disease varying with the virulence of organism, nature of local conditions, duration and like conditions. He further suggests "Is it not possible that spasm of circular muscle originating in the sympathetic nervous system is the primary basis of many diseases of the appendix, of diverticulitis, of gall bladder disease analogous to Raynaud's disease of peripheral vessels, or sudden spasm of the renal circulation?"

Whatever the theoretical explanation, we do know that patients with chronic gall bladder disease very frequently obtain marked relief from a low fat diet, that is, a diet containing from seven to twenty grams of fat per 24 hours intake. The frequent constipation noted in chronic cholecystitis is often benefited by forcing water, the patient drinking about two quarts of water per day.

Diet has become such a useful adjunct and often sheet-anchor in the treatment of disease, that the general practitioner should be able to think of the common foods making up our diets in terms of calories, grams of protein, fat, and carbohydrates. Unless he is able to do this, the modern dietetic liter-

ature will be a foreign language to him. Two most useful sources of information will be found in Joslin's Diabetic Manual⁶, and the Connecticut Agricultural Experiment Station report on Food Products and Drugs⁷. In addition, there are numerous good texts on dietetics on the market, one of which should be on the desk of every practitioner of medicine.

REFERENCES

1. David Riesman. The Southern Medical Jour-

nal, 1923; XVI. p. 160.

2. E. A. Boyden. Ana. Rec. 1925. XXX. 333.

3. G. M. Higgins and Frank C. Mann. Amer. Journ. Physiol. 1926. LXXXVIII. 339.

4. The Mechanics of the Digestive Tract. Alvarez, Hoeber, 1927.

5. Charles Mayo. The Gall Bladder of 1926. Annals of Surgery, 1926. LXXXIV. 358.

6. E. Joslin. Diabetic Manual. Lea and Febiger. Phila.

7. The Connecticut Agricultural Experiment Sta. Annual Report on Food Products and Drugs. 1913 and 1926.

8. Albert A. Epstein: Amer. Jour. Med. Sci. CLIV. P. 638.

VARIATIONS IN THE DEGREE OF CANCER MALIGNANCY*

By CHURCHILL HODGES, M. D.
Huntington, W. Va.

INFECTION diseases vary greatly in the symptoms which they produce, and in the course they run. Tuberculosis, for instance, may be of the acute miliary type, producing grave constitutional reactions and leading to an early fatal termination; or it may be of the chronic pulmonary fibroid type, producing few symptoms, and running a course of years before proving fatal.

Cancers may vary as much in the reactions which they produce as many infectious diseases, although we are not prone to regard them as being so variable.

There is considerable difference in the mechanism of defense which the body has against infectious diseases and cancers¹; but in both the organism attempts to limit their progress. There are various antibodies, such as antitoxins, agglutinins, etc. which may be found in the blood to enter the combat in the infections, while we find no such method in the combat of cancer. Instead, we see the gathering of lymphocytes, and the production of fibrous tissue to endeavor to limit the extent of the growth and to strangle the cancer cells.

The course of cancer depends upon several factors, which MacCarty has stated as follows²: the size of the growth, age of the host, duration of the lesion, relation of

growth to nutrition, emaciation in relation to food intake, proximity of growth to vital structures, lymph-glandular involvement, distant metastases, character of previous treatment, and the morale of the patient.

Besides these, there are other factors which have been studied, but which are of value only after the neoplasm, or a biopsy specimen of it, has been removed from the body. They are determined by the microscopic examination of a section, and consist of infiltration with lymphocytes, fibrosis, hyalinization, and the degree of differentiation of the cells.

When any of these factors are present, the average length of life is greater than when they are absent. When all of the factors are present, the average length of life is much greater than when all of the factors are absent. The variations in the frequency of these factors in different organs suggests that the defensive mechanism, while a general phenomenon, acts differently in different parts of the body.

Cancers are classified according to their origin into epithelioma, or carcinoma when from the epithelial or glandular tissues; sarcoma when from the connective tissues; glioma when from the nerve tissue; and angioma when from the vascular tissues. Because the first two, carcinoma and sarcoma are found in such a great majority of

* Read before the Cabell County Medical Society, Huntington, W. Va., February 9, 1928.

the cases of cancer, they only will here be considered.

Based upon his studies upon the degree of cellular differentiation, in epitheliomas³, Broders has divided them into four grades, which has aided prognosis and treatment considerably. Grade 1 includes those cancers in which 100 to 75 per cent of the cells are differentiated; grade 2, those in which from 75 to 50 per cent are differentiated; grade 3, those in which from 50 to 25 per cent are differentiated; and grade 4, those in which the differentiation is from 25 per cent down to practically 0.

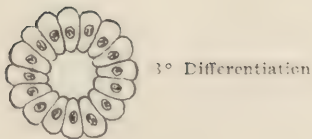
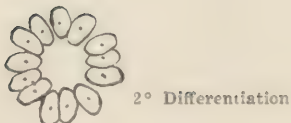


FIGURE 3—Diagrammatic representation of the recognizable stages of differentiation of a gland unit during normal embryologic development. It also represents the stages of differentiation in neoplastic conditions. Reproduced with the permission of Dr. MacCarty in the *Journal of Laboratory and Chemical Medicine*, January, 1928.

The nearer the cell approaches the normal adult functioning cell, the more it is differentiated, and the less malignant it is; conversely, the nearer the cell approaches the embryonal type, the less it is differentiated, and the more malignant it is. Hence

we can see that a grade 1 carcinoma, in which the cells are 75 per cent or more differentiated, is of the least degree of malignancy; and so through the scale until the grade 4 is reached, in which 25 per cent, or less, show differentiation, and in which the greatest degree of malignancy is found.

Such a classification has not yet been made for sarcoma, but MacCarty² is making studies in the appearance of the single isolated cancer cell which bid fair to add greatly to the existing knowledge of them. Unfortunately there is no reliable reaction either of the skin, blood serum, or chemical which speaks for or against malignant neoplastic disease, although countless numbers have been advocated from time to time.

The profession is seeing smaller and less distinctive lesions now than was the case several years ago, due to the education of the public; hence we see more borderline cases, and the diagnosis is rendered correspondingly harder. For example⁴, Bloodgood states that since 1920 in about 50 per cent of the women who were referred to the Hopkins Clinic because of some breast complaint, nothing serious was found and no operation was performed. Of the remaining 50 per cent in whom there was a definite lump, the lesion proved to be cancer in one-half. So of 100 women examined for breast lesions, in only about 25 per cent was it malignant.

In comparing this with the records between 1890 and 1900, it was found that 85 per cent of those who came to the same clinic had cancers.

To go into detail of cancer of any organ would be too time consuming, so here will be mentioned only a few well known and easily remembered facts about the more common malignant growths in the more usual locations, to show that what appear to be microscopically the same type of growth, will vary in malignancy in different organs, and in the same organ they will vary according to the several factors mentioned above.

In making a microscopic diagnosis, it is not sufficient to state that the tissue is can-

cerous or non-cancerous, but the origin should be stated when possible; whether from the glands, adeno-carcinoma, or from the squamous epithelium, squamous cell carcinoma, or from the basal layer of cells, basal cell carcinoma; the degree of differentiation of the cells, or the grading of the neoplasm, and the amount of fibrosis and degeneration. All of these have a bearing on prognosis, and frequently on the treatment, whether to operate, or to irradiate, and the extent of the operation, or the dosage of the rays. The advent of radiation therapy has made more exact demands upon the pathologist, and in many cases after exposure, the appearance of the neoplasm has been so altered that it is difficult to tell the original structure, due to fibrosis and capillary occlusion, with a consequent strangulation of the malignant cells.

Among cancers, probably the first in importance are those of the uterus. Of 31,000 cases of cancer collected from the literature by Welch, 29.5 per cent were of this organ⁵. There is a great difference between the prognosis of cancer of the cervix and that of the corpus. In the cervix, by the time the diagnosis is made, metastases along the lymphatics have usually taken place, so that an ultimate cure by operation is not often to be looked for. It is here that irradiation has proven of very great value. About 50 per cent of these cases are inoperable when first seen, and in some clinics only irradiation is used in any case. When the changes present show only a pre-cancerous condition, the removal of the cervix is followed by a cure.

Contrast this with cancer of the corpus, where only 16 per cent are inoperable when first seen, and when a hysterectomy is usually followed by a cure. Here, as elsewhere, it is important to make an early diagnosis, and one should not hesitate to do a diagnostic curettage when they symptoms are suggestive of cancer, as it is only by microscopic examination of the fragments so obtained that an early diagnosis can be made.

In males, the stomach is probably the most frequent site of cancer, as the uterus is in the female. In the 31,000 cases of

cancer cited above, 21.4 per cent were of the stomach⁵. Here the greatest difficulty is encountered in making an early diagnosis, as there are no symptoms which are very reliable. Some of our greatest clinicians have spent a great deal of time studying methods by which an earlier diagnosis in stomach cancers could be made, but the published results have not been very encouraging. In early cases, with complete removal of the growth, cures are frequently effected. The character of the growth and its duration are the chief factors determining the outlook. When an adeno-carcinoma with little cellular differentiation is encountered, there is little hope of ultimate cure. When the growth is slow, with some degree of cellular differentiation, and considerable fibrosis is present to retard the growth and to partially strangle the cells, there are many apparent recoveries three and five years after partial gastrectomy.

Reports on the incidence of uterine and mammary cancers vary in different countries, but in general the mortality from the former runs about 34 per cent, while from the latter, about 22 per cent of all cancers. It is in the early operation for cancer of the breast that the greatest good has been accomplished, as shown above by the figures of Bloodgood, who from his studies states that the greatest factor in determining the cure is the duration of the lump. Early cancers of a low grade of malignancy, or pre-cancerous conditions, are completely cured by total extirpation. A cancer showing little cellular differentiation is almost sure to recur, either locally or by metastasis, no matter how early the operation. Some of the very malignant cellular cancers prove fatal in a few months, while some of the scirrhous type, where the cells are held in check by dense fibrous tissue, may run a course lasting ten or fifteen years.

The structure of skin cancer is important in prognosis and the method of treatment decided upon. The thick, hard growth composed of squamous cells showing pearl formation and much keratin, will not recur after removal. These growths are sometimes difficult to distinguish from simple papilloma, and frequently transition stages

are seen. The rodent ulcer type of growth has its origin in the basal layers of the skin, is slow in growth, has little tendency to metastasis, does not deeply penetrate until late, and is cured by complete removal. It is this type of cancer which is so frequently stimulated with pastes and soothed with ointments, until it gets a firm hold and spreads to deeper tissues, which makes a different problem. There is a marked difference between this and the squamous cell carcinoma, which we see on the pharynx, tongue, and at muco-cutaneous junctions. These have a tendency to early metastasis and rapid growth, and demand more complete operation, probably including the removal of the regional lymphatic glands.

The ovary is frequently the primary site of carcinoma, which is usually very malignant. The form which shows the quickest and widest metastasis is the small cell carcinoma, in which the breast and lungs are early involved. The most usual type is the cystic papillary adenocarcinoma, which spreads not by way of the lymphatics, but by the rupture of small cysts and setting free the small papillae, which attach themselves to the peritoneum, there growing and producing secondary foci. These, although rather slow, nearly always prove fatal, and irradiation seems to affect them but little.

In the testicle, the embryonal carcinoma, having an appearance and feel similar to brain tissue, is the most frequently encountered type of malignancy, in which metastasis along the lymphatics occurs early, with an ultimate gloomy outlook.

We find a greater variation in carcinoma of the prostate, as here we find them often in the early stage, when there is considerable differentiation of the cells, and little or no infiltration beyond the capsule. In all locations, an important question is to determine whether or not the growth has broken through the confines of the capsule. If we are fortunate in removing it at an early stage, the outlook is good. If the growth be very cellular, with definite infiltration of surrounding tissues, the outlook is always gloomy.

The salivary glands are the seats of tumors which are more varied in structure

than anywhere else in the body except the ovaries. The large majority of neoplasms here have a complex structure, and microscopically they appear to be malignant. One field may appear as carcinomatous, an adjacent one as sarcomatous, another endometriomatous, and still another as chondromatous. They are referred to as mixed tumors, the prognosis of which is generally good despite the malignant microscopic picture. MacFarland⁶, in a study of ninety cases in which the history could be traced, found that they were inherently benign, but commonly recurred after excision, and if frequently disturbed became locally destructive and invasive without giving metastases. The rapid enlargement of a mixed tumor of long duration and slow growth is not the result of malignant change. As intervals of ten, twenty, or thirty years may elapse between the removal of a mixed tumor and its recurrence, caution should be exercised in declaring any case cured. I have seen five such tumors, with one recurrence in five years.

Carcinomas of bone are secondary, resulting from metastasis from some other part of the body. Primary sarcoma of bone is not an uncommon entity, and its diagnosis is of great importance because of its malignancy, and the radical and often mutilating operations required. Neoplasms mistaken for sarcomata may be removed radically, thus needlessly mutilating the patient. They are classified as follows⁷: Osteogenic sarcoma, giant cell tumors, and myeloma. Here the widest extremes are represented in the prognosis, and it is a matter of first importance to determine the prognosis in the light of all the data, both clinical and pathological. The most important are the age of the patient, as subjects under 20 years withstand the progress of malignant tumors poorly, the rapidity of growth, as a rapidly growing tumor is nearly always malignant, and eventually fatal, and whether there is encapsulation or not. Some slowly growing but malignant osteoid appear not formidable in themselves, but early produce metastasis. Of 200 cases of osteogenic sarcoma, accepted by Codman's Registry for bone sarcoma, only 12 five-

year cures were obtained, and in nine of these the structure was atypical, and some doubt as to their malignancy was expressed by reviewing pathologists. The giant cell tumor is here mentioned because of its benign character, its failure to metastasize, and its curability by thorough curettage. The structure of this tumor is similar to the epulis found on the gums, and the latter also is cured by thorough curettage.

Carcinoma of the appendix is increasing in proportion to the attention devoted to it. Two main types appear, (1) Columnar-cell or gelatious adeno-carcinoma, and (2) small polygonal or spheroidal cell carcinoma. The former type presents the same general malignancy as other similar carcinomas of the intestine, and occurs usually in older people, while the latter occurs at an early age, and is almost always benign. I have seen five carcinomas of the appendix, four benign and one malignant, and this one in a child.

Cancer of the liver is usually secondary, but does occur as a primary growth, refer-

red to as a hepatoma, which always has a fatal termination.

There are infinitely more malignant neoplasms than have been here mentioned, and infinitely more could be said of each, my purpose here being to try to show how each type of growth should be studied, together with its location, and the other factors which have been mentioned, before making a prognosis, and to show how greatly the course of the different types of malignancy may vary.

BIBLIOGRAPHY

- Bordet, Jules: *Traite de l'Immunité dans les Maladies Infectieuses*. P. 707. Masson et Cie.
2. MacCarty, Wm. C.: *Jour. of Lab and Clin. Med.* Jan. 1928. P. 354.
3. Broders, A. C.: *Minn. Med.* Dec. 1925. P. 726.
4. Bloodgood, Joseph C.: *Cancer Research Fund Reprint No. 125*.
5. Welch: Quoted by Ewing, *Neoplastic Diseases* p. 667. Third Ed.
6. McFarland, Joseph: *Am. Jour. Med. Sc.*, Dec., 1926. P. 845.
7. Ewing, James: *Neoplastic Diseases*. Third Ed., Saunders, P. 291.

THE DIAGNOSIS OF GALL BLADDER DISEASE*

By G. H. BARKSDALE, M. D.
Charleston, W. Va.

“OF ALL the possible, probable causes for gastric disturbance (so-called chronic indigestion) the commonest is undoubtedly gall bladder infection, with or without gall stones. It is the commonest cause, both because it is the most prevalent of all gastrointestinal disorders and of all extra gastric conditions it exercises the most direct, un-failing influence upon the stomach and its function.”

The above statement which may or may not be true in its entirety, stimulated me to search the current literature for the newest thought concerning the diagnosis of biliary tract disease. Now that I have done this, my suspicions have been justified in that I am sure that neither I nor my associates are making this diagnosis as often as it should be made. Hearst, of Guy's Hospital,

states: “Cholecystitis, I am convinced, is the most common of all abdominal diseases. In spite of this it is comparatively rarely diagnosed.”

In the minds of most of us, gall bladder disease means very definitely, attacks of severe colicky pain under the right costal arch with jaundice. As true as this may be, it is to be realized that cholelithiasis is always preceded by cholecystitis, the former implying the latter. It is then small credit to diagnose gall stones, for in this advanced stage of biliary tract disease very real damage has probably taken place.

One may remove the gall bladder and stones, but the chronic hepatitis, pancreatitis, may or not be relieved, to say nothing of the damage that may have been done through the years that it was smoldering as a focus of infection. Many authors have stressed the importance of serious hepatic

* Read before the Kanawha County Medical Society, December 6, 1927.

damage, as always being associated with gall bladder disease. The association of pancreatitis has been definitely established, there being an incidence of 62 per cent gall bladder disease in pancreatitis. I have seen within the past month, a woman with definite gall bladder disease who to my amazement gave 3 per cent glycosuria. Many observers have referred to cholecystitis as an etiological factor in diabetes. Pancreatitis associated with cholecystitis undoubtedly accounts for many atypical glycosurias. Deaver reports a chronically diseased appendix removed in all cases in which cholelithiasis was diagnosed. The coincidence of duodenal and gastric ulcer has been commented on by many. To grasp fully the significance of the thing, one must recall that the gall bladder is only a unit in a system which includes the liver, pancreas, and stomach. Any disease affecting one unit is bound to reflect on the whole system. Rehfuess expresses it as follows: "The gall bladder must be considered as an integral part of the hepato-enteric system. We must think of the liver as one unit and the intestinal tract as another, the two associated by connecting links referred to as the hepato-enteric circulation." If one reflects that in this complex, the lymphatic, vascular system and nerve supply are so identical, it is no small wonder that one organ cannot suffer independent of the other. It is interesting that the removal of a diseased gall bladder has repeatedly improved a chronic myocarditis, chronic arthritis, nephritis and arteriosclerosis, thereby establishing itself as one of the commonest and most insidious of focal infections. In it as such are involved two distinct kinds and modes of systemic infection. First, the absorption and transmission to various parts of the body of toxins and other products of bacterial invasion, and second, the resorption into the system of the bile pigments and excretory elements of the bile, notably cholesterolin and lecithin which are exceedingly poisonous. Consequently, one must decide if it is safer to urge many early operations on the gall bladder with the frequent mistakes that must follow, or allow such cases to drift until the diagnosis is obvious

and the inevitable changes have taken place in the associated organs. I would not give the idea that the diagnosis is an easy one. On the contrary, early cholecystitis is without a classic symptom complex and is a tremendously difficult diagnosis. This is even true with the surgeon, who holding the gall bladder in his grasp, is at times unable to decide whether it is pathologic or not. Judd states that at times, he removes such gall bladders, the deciding factor having been a history more or less classic and has seen relief of all symptoms follow. Another operator states that at such times he aspirates and if heavy mucus and sand are recovered, he operates further as indicated.

In approaching the symptomatology one should consider three outstanding factors in the past history:

1. That a cholecystitis as mentioned, precedes a cholelithiasis.
2. If a cholecystitis, where did the infection probably come from?
3. Were or are there factors which bring about biliary stasis?

With the above in mind, it is important to establish whether there has preceded a symptom group of cholecystitis so far as we know such. Did the infection come from the common seats of systemic infection such as teeth, tonsils, etc., or past illnesses—pneumonia, typhoid, attacks of appendicitis, prostatitis, etc.? Pregnancy, obesity and indolence, undoubtedly make for biliary stasis with a consequent stagnation of bile, comparable to residual urine associated with an enlarged prostate.

History: Cheney of San Francisco, is due the credit of classifying the symptoms of cholecystitis in a most acceptable way. His classification being based on the analysis of the symptoms of 114 proved cases. In the following discussion of history and symptomatology, I have used his article written in 1922, amplifying the same by adding more recent contributions both as to symptomatology and laboratory aids. He divides the subject into four groups:

Group One represents the classic gall stone colic otherwise without symptoms. The patient without previous indigestion or having eaten indiscreetly may awake in the

night with violent pain, most frequently under the right costal arch. It may circle around to the back or bore directly through to the back or radiate to the angle of the scapula or shoulder. However, the pain may be felt most urgently in the stomach and when associated with nausea and vomiting, as it often is, leads one to suspect the stomach, it being hard to convince the patient that it is not the stomach; or it may be substernal, suggesting angina pectoris, or under the left rib or pass down towards the appendix. The pain is relieved by opiates only and invariably leaves abdominal soreness. Jaundice, if it is to occur, appears within 48 hours. It occurs in a scant 50 per cent of such cases and may be very fleeting, presenting only a slight tinting of the eyes. Jaundice incident to gall-bladder disease is usually transient and lasts about three or four days. Persistent jaundice complicating cholecystic disease is chiefly the result of an inflammatory, infectious or malignant process, usually affecting the extra hepatic ducts and less frequently the liver or pancreas.

Summary: Pain, sudden onset without cause, severity of suffering, site of pain, recurrence of attacks, good health intervening.

Group Two describes those cases who seek relief from stomach trouble which is constant though they have classic colic as referred to. Unfortunately, the type of indigestion and its symptoms are not always the same. I give it purely as an opinion that gastric neuroses or so-called nervous indigestion rarely if ever begins in middle life. One at such time developing a constant stomach distress usually has an organic disease. The indigestion symptoms mentioned, may be those of a hyperchlorhydria, reduced, or an achlohydria, the latter probably representing an advanced biliary tract disease. "The gastric complaint is often a feeling of fulness with a sense of weight coming on soon after eating, there is persistent gas formation and constant belching or sour stomach with heart burn, water brash, nausea and vomiting of very irritating material."—(Cheney. Moynihan says: "The stomach symptoms are of fullness,

weight, distention or oppression of the epigastrium coming on one-half to three-quarters of an hour after meals, relieved by belching, dismissed on the instant of vomiting. Eating acid or greasy food may be followed by a sense of tightness and the patient becomes restless and if not in acute pain, obtains relief by bending the body forward or by belching. It is called heart burn." Rehfuß: "These cases usually show a flatulent form of dyspepsia usually made worse by fats with distress and discomfort which lacks the regular painful recurrence of the ulcer syndrome." Judd refers to belching and bloating coming on immediately after meals. Alvarez: "In milder cases and in intervals between attacks the patient complains mainly of belching and bloating, they often feel bilious and get a little sallow, rarely jaundiced. Nausea, regurgitation of food and heart burn are common, vomiting often comes during the attacks of pain." Whipple: "Seventy-eight per cent of cases complained of epigastric distress or a distended or bloated feeling in the epigastrium or left upper quadrant or the belching of gas."

Summary: Attacks of colic as noted in One, coming on shortly after meals, indigestion atypical, reduced hydrochloric acid or not, gas with distention and distress.

Group Three. Those in this group complain of constant indigestion as in group two. They do not have attacks of colic though complain of "spells" with fullness and soreness in the right hypochondrium at the tip of the ninth costal cartilage. They feel as though something were in the way. The pain is not severe but a dull aching and nagging feeling or a sense of beating and throbbing with distention. The spells are often induced by jarring as an auto ride. A brisk purge may give relief.

Summary: Chronic stomach trouble with subacute attacks of gall bladder colic. Constant indigestion.

Group Four. Finally there are a certain number of dyspeptics who over a considerable period of time complain of such symptoms that gastric ulcer is suspected. However, the history is not just right. Others who are sallow and have lost weight

suggest carcinoma. Others are passed on as chronic gastric catarrh, or what not. Such cases usually, and especially in the past, drift aimlessly on until exploratory laparotomy, intensive study or a classic gall bladder colic discloses the true nature of the disease.

Summary: Atypical chronic stomach trouble over long periods of time with no history pointing definitely to the gall bladder.

In reviewing certain outstanding symptoms it is to be noted that the one constant symptom is indigestion. Granting, according to Hurct, that all postmortem examinations on bodies over 20 years of age, 10 per cent disclosed gall stones, and that all cases of gall stones are preceded by cholecystitis and that cholecystitis does frequently occur without stones, it seems obvious that every chronic dyspeptic without an apparent cause for his indigestion should be scrutinized with the idea of gall bladder disease in mind. It is doubtful in the minds of many if achlohydria per se is a definite clinical entity and isn't a manifestation of organic diseases such as gall bladder disease, pernicious anemia, malignancy, etc. The most common and outstanding feature then of gall bladder disease is indigestion, association with often reduced or no hydrochloric acid and gas. The indigestion in a majority of cases coming on shortly after meals and is often relieved by belching. The pain is a variable quantity and always speak for tension on the fibrosed musculature of a diseased gall bladder, for at this stage of affairs the musculature has always suffered on account of long preceding inflammation. The greater the tension the more severe the pain which however is never so severe in the non-calculous as in the calculous cases, the passage of stones being an added cause of pain. Vomiting is both a toxic and reflex affair. This, as Cheney states, covers the symptomatology of by far the majority of cases of gall bladder disease and I do not wish to cloud the issue, which is essentially the diagnosis of cholecystitis, with or without stones, by elaborating on biliary tract disease in general. Malignancy, empyema, obstruction of the common duct, all fall into

one or the other of the above groups with certain added symptoms which remain quite constant. For this reason, they will not be discussed here. For the same reason the differential diagnosis has been omitted as it would be only a repetition of what might be found in any standard text on diagnosis.

Laboratory: Stomach contents. An important finding is the presence of bile in the stomach contents, not merely a faint trace but an amount obvious to the naked eye. Lyon is convinced from his studies that bile is normally discharged through the duodenum only in response to the stimulus of food and should not be present there, in the fasting state. Even so, it cannot find its way into the stomach except by regurgitation due to reversed peristalsis in the duodenum which in turn is most often the result of adhesions between the duodenum and the gall bladder.—(Cheney.)

Reduced to complete absence of hydrochloric acid is an important finding. Several investigators report the incidence as 45 to 50 per cent. Examination of the fasting stomach contents disclosing an achylia establishes an organic disease; if clean, gall bladder disease may be suspected. For the causative agent is extra gastric. If foul with mucus, bacteria, blood and pus, obviously there is an organic disease of the stomach.

The Lyon-Meltzer biliary drainage for diagnosis is such a moot point and the opinions so varied as to its worth that I hesitate to deprecate or recommend it.

The Wassermann test is eminently important as syphilis of the liver and its appendages can simulate any disease of these organs. Further, I might add that the lightning pains of Tabes or syphilitic radiculitis have not infrequently been mistaken for gall bladder colic.

Gall bladder X-ray visualization by the Graham method is probably the most valuable single diagnostic aid that has ever come into the study of cholecytic disease. "The use of tetraiodophthalein sodium by the oral route has proved correct in approximately 95 per cent of cases in which operation was performed."—(Deaver and Bartz.)

Sir Berkeley Moynihan states that the

test is a great advantage in the study of gall bladder disease and that in their hands examination by Graham's method has given accurate results in 92 per cent of cases. Case reports in a similar vein. Judd states that the procedure is comparable in value to X-ray study of gastro-intestinal tract. Rehfuess: "The percentage of correctness in 380 cases by all authors by the intravenous method is 95 per cent. In 181 such cases, 89 per cent by the oral method."

The test in short gives the following information:

(1) An insufficient liver. (2) An obstructed duct, either from calculi or inflammation in or about the gall bladder. (3) A failure to concentrate bile due to (a) non-functioning cystic mucosa, (b) non-functioning lymphatic system.

The unfortunate feature is the fact that the test is based on the deposit of salt in the musculature of the gall bladder. Hence, in early cases the muscle being intact, the lymphatics freely convey the salt and visualization is recorded. This gives a Graham negative in those early cases when the test is most needed. Later, when the musculature is atrophic and replaced by connective tissue the lymphatics being obliterated there is non-visualization or a Graham positive.

X-ray alone, I gather, is purely a matter of personal equation. Those highly experienced locate the subcostal pain in relation to the filled duodenum, noting the location of the gut, whether adherent and to what, the size, shape and filling of the duodenal cap. Its greatest value however is in the differential diagnosis of ulcer.

The determination of the volume of serum bilirubin is to be regarded as a valuable laboratory aid. Bilirubin is to be recalled as an excretory product of the liver and is a normal and regular constituent of the blood. Its clinical application has to do with jaundice. I refer to the icteric index. It makes no diagnosis save that of jaundice. The normal index is approximately 5. It is of greatest value in determining latent

jaundice. The latent zone being 6 to 15, when the index is 15 or above, jaundice begins to appear in the eyes and urine. It is of particular value in differential diagnosis of upper abdominal pain as it precedes clinical jaundice 36 to 24 hours, correspondingly it disappears in advance. The clinical application is obvious.

The van den Bergh test for serum bilirubin is both a qualitative and quantitative one. Its value as applied to the zone of latent jaundice is not so accurate as the icteric index. Its greatest value is in differentiating between hemolytic jaundice and jaundice due to hepatic obstruction. (The serums on those from hemolytic jaundice give a direct reaction so-called and normal serums on these from hemolytic jaundice indirect reaction.) As may be seen, its practical value as applied to gall bladder disease rests in its ability to aid and determine the type of an obscure jaundice. Other laboratory methods, namely determination of blood cholesterol, the study of the feces, routine blood and urine examinations as elsewhere have a place to fit or not the case in hand.

SUMMARY

1. The difference in symptoms between the non-calculus and calculus cases is purely a matter of severity.
2. Gall bladder disease is a most constant and frequent cause of chronic indigestion.
3. Vomiting never identifies the stomach as the site of the trouble.
4. It is doubtful if a diagnosis of cholecystitis is ever tenable in the absence of tenderness at the tip of the ninth right costal cartilage.
5. The gall bladder is never alone affected.
6. As a focus of systemic infection, the gall bladder is important.
7. All long standing cases of gall bladder disease are theoretically if not practically bad surgical risks.

CASE REPORTS

Late Syphilis: Case Reports*

By B. F. BROWN, M. D.
Huntington, W. Va.

It is well to re-emphasize the insidious progress that syphilis makes. Oftentimes no detectable symptoms are noted by the patient from the time the primary lesion disappears until he comes to us with irreparable damage to some important body system.

Stokes states that as a whole the average physician has an "index of suspicion" that is not high enough, and that a much greater percentage of syphilis can be picked up by a careful consideration of all known factors.

We have found the clinical history, a thorough physical examination and the laboratory, are all essential and must be used in conjunction in order to discover the malady. Our conscience cannot be salved by getting a negative blood Wassermann report and then state that the patient is non-syphilitic. At other times we cannot make a positive diagnosis without laboratory aid. Each case is a problem unto itself.

After the diagnosis the question of treatment arises. In no other condition is there more individualization. There are still a few physicians who retain Erlich's "sterilizans magna" theory, not for salvarsan necessarily but for the weaker neo-salvarsan as well. The great majority, however, are beginning to use intensive treatment, and keeping the patient under prolonged observation with repetition of treatment upon the slightest provocation.

Tonight I wish to report two cases which bring out that easy, tricky, gradual approach which is so characteristic of syphilis. One case diagnosed by the laboratory—the other by an almost pathognomonic physical finding; one case in which intensive prolonged treatment is essential, the other in which such treatment would probably be "fatal."

CASE 1—Seen 9-15-27—R. W. W. Age 52. Chief complaint, weakness in left shoulder and arm. Present illness, about one year ago patient began to notice a slight weakness of his left shoulder with some pain and twitching of the shoulder muscles. Nine months ago he had to stop work as a locomotive engineer on account of his weakened shoulder. Since this time he has noted a gradual shrinking of his upper arm and the muscles of the left shoulder. At present he cannot raise his arm laterally and can only flex and extend his forearm at his elbow without assistance from his other arm. Past history, usual childhood diseases. Typhoid at 21. Sore on penis lasting three weeks, in 1903; got well with only local treatment. Gonorrhea in 1908. Had frequent attacks of severe pain, lasting several days at a time, over right tibia two or three months preceding onset of trouble with shoulder. Family history, married in 1900. Wife has always been apparently healthy. Five children, all well. Two dead, one age of five with pneumonia, one at age of fifteen with influenza. Wife has had two miscarriages, first and second pregnancies. Physical examination, an erect, fairly well developed male. Gait normal. Skin free from eruptions or old scars. Head, no bony irregularities, no thinning of hair. Post cervical and sub-maxillary glands palpable—not markedly enlarged. Nose: Nasal septum markedly deviated from fracture of nose. Eyes: React to light and accommodation; there is a persistent later nystagmus. Mouth: Many gold crowns with marked pyorrhea, and several decayed teeth. No mucous patches, no ulcerations. Chest: Lungs clear throughout. Heart: B. P. 112-66. Heart not enlarged. No murmurs, rate regular, and 72 per minute. Abdomen: Liver and spleen not palpable. No masses, no tenderness. Inguinal glands not enlarged. Extremities: The left shoulder is carried lower than the right. There is a marked atrophy of the muscles of the left shoulder, involving the supra-scapular group posteriorly and the deltoid throughout its course. There is a marked prominence of the spine of the scapula and of the acromio-clavicular joint. On casual inspection the left shoulder joint seems to be dislocated; however, this

* Read before the Cabell County Medical Society, April 12, 1928.

is not real, the appearance being due to the laxness of the shoulder muscles allowing the arm to lag down. The upper one-half of the arm on this side is much smaller than on the right, and cannot contract the muscles raising the arm from the body. The epitrochlear glands are not palpable on either side. Legs: There is a slight tenderness over the right tibia on pressure, but no thickening of the periostium. Reflexes: Rhombberg, Gordon, and Babinski negative. Muscular coordination except left arm good. No abnormal diminution of sexual power, no loss of sphincter control, knee kicks active, equal. Biceps on left reacts but much weaker than on right. No fibrillatory twitchings of left shoulder muscles on percussion. No sensory disturbances over the left shoulder and arm, there seems to be only a motor nerve paralysis of these muscles. Abdominal and cremasteric reflexes active and equal. Spinal puncture: Shows fluid water clear, two cm. of water pressure up to 12 cm. on cough and straining and to 10 cm. on jugular pressure. Laboratory work: Urinalysis; Hb. and L. and D. normal. Wassermann: Blood Wassermann negative. Spinal fluid Wassermann strongly positive. There was a slight trace of globulin with no cells seen in the spinal fluid.

Luetic treatment was given as follows: Saturated solution of potassium iodide drams one half T.I.D.P.C. September 19, 1927, Neoarsphenamine .6 gm. September 22, 1927, Bismuth potassium tartrate .2 gm. intramuscularly. September 30, 1927, Neoarsphenamine, .9. From this time on 9 gm. of neoarsphenamine and .2 gm. bismuth each alternating three days until two grams of bismuth and 12 grams of neoarsphenamine were given. At this time a slight itching, and a fine red mucular eruption over the skin of the feet and legs were noted and treatment was discontinued. Along with medication passive then active exercise to the left arm and shoulder was given.

After the first five weeks voluntary function began to return to the arm. By January 1, 1928, the patient was able to do such strenuous exercise as sawing and chopping wood. On February 5, 1928, he returned to

work as a locomotive engineer and has worked steadily since.

The only treatment now consists of mercury inunctions each day for twenty days then a week's rest, until fifty are given, after which time the patient promises to return for another spinal puncture and examination.

With the presence of a negative Quickenstadt and the manner in which the patient has improved, I am inclined to believe that the atrophy of the muscles in this case was of syphilitic origin.

Syphilitic involvement of nerves arising from the spinal cord is fairly rare, and is generally a gummatous process or pressure from a periostitis or ostitis. There is another class, however, known as syphilitic root neuritis, in which the nerve root is involved. In this manner the paralysis of isolated muscles with degeneration as in the above case can be explained.

CASE 2—Seen 12-30-26, J. W. S.

Chief complaint: Shortness of breath and pain over heart, especially on slight exertion. The patient had been working steadily as a carman, and always in the best of health. After eating breakfast this morning he started to work, but after getting six blocks from the house he suddenly noted a shortness of breath, palpitation of the heart and a tight painful sensation in his left chest, relieved only by resting. He then went very slowly to the railway shops but found that he was unable to work and was sent to the hospital. Examination: In bed showed an obese male, age 51, dyspnoeic and unable to lie down. Radial pulse 100, very irregular in rate and force. Blood pressure systolic from 140 to 120 diastolic 70. Heart: Apex in the sixth interspace one inch to the left of the nipple, the heart sounds are of very poor quality, rate 160 and very irregular, of a fibrillatory character. Over the aortic area there is a definite roughening of the first sound. Physical examination: The physical examination including reflexes was otherwise normal. Past history: Gonorrhoea and a chancre at the age of 19. Only local treatment. Influenza in 1918, complete recovery. Married twice and neither wife was pregnant.

After ten days' rest in bed the patient seemed much improved. A fluoroscopic examination of the chest at this time showed the heart apex just inside the anterior axillary line with one inch dilatation to the right of the sternum. The aorta was very slightly dilated with a very prominent aortic knuckle. The chest was otherwise clear.

Laboratory: Two blood Wassermanns were negative. Urinalysis negative.

A diagnosis of aortitis was made. After three weeks' rest the patient was symptom free and insisted on leaving the hospital although the pulse was still very irregular. Discharged January 20, 1927.

He did not return until May 10, 1927. At this time he states that he has had frequent severe pains over heart radiating down the left arm, and that he is yet very short of breath on slight exertion. The pulse is still very irregular, and the heart has enlarged until the apex is in the axillary line and a definite dullness exists to the right of the sternum. The blood pressure is 180/80 and the aortic first sound is replaced by a blowing murmur.

Stereoscopic plates at this time show a marked dilatation of the heart, apex in the sixth space and in axilla. The right border of the base is well to the right of the sternum. There is a dilatation of the ascending aorta to approximately three inches in width. Lungs clear.

Neoarsphenamine .3 gm. was given and seven blood Wassermanns were run. All were negative except the second which was reported 2 plus. At this time the patient was put on mercury inunctions and potassium iodide.

On July 1, 1927, it was noted that the pulse was regular. The rate was 72. Blood pressure 170/80 in each arm. The patient feels better but cannot exert himself without dyspnoea and pain over heart.

The fluoroscopic examination at this time revealed a marked pulsating aneurism of the aortic arch almost as large as the heart and filling most of the upper left chest cavity. The heart is pushed down to the seventh interspace and well out into the axilla.

At this time bismuth potassium tartrate was started, .2 gm. each week until two grams were given. The bismuth, mercury and potassium iodide was the only treatment given.

This case is of particular interest because of the development of a definite aneurism from an aortitis in a period of eight months. The initial lesion was acquired thirty years previously but no symptoms of syphilis sufficiently noticeable to require medical attention had been present.

Since the aneurism was first noted the pulse has been regular and strange to say, the patient has been more free from symptoms. It is logical to believe that the pain was due to a stretching and tearing apart of fibers of the media; the relief of pain was probably due to the complete development of an aneurism.

ABSTRACTS

Knowledge of Gingivitis

The Present State of Our Knowledge of Gingivitis — By Robert A. Keilty, M. D., Washington, D. C., from the *Journal of Laboratory and Clinical Medicine*, Feb., 1928.— More recently the medical internist, having become convinced of the importance of oral foci and their relationships to metastatic manifestations, is demanding more from the dentist than a mere tooth extraction or a complete mouth extraction, in the hope that one or more teeth removed may relieve some recognizable chronic infection. The purpose of this paper aims further, to discuss the clinical and pathologic types of gingivitis with methods of study and a standardization for reports. A report on five thousand cases with the bacteriologic findings of over four thousand either by smear, dark-field, culture, or section is included. An attempt has been made to show the relationship of various etiologic factors with the position and importance of each, as applied to the etiology of gingivitis and its pathologic reactions. The term "pyorrhea" we have absolutely dis-

carded, as it is misleading. The minute one speaks of pyorrhea, there is an immediate picture of gums full of pus and teeth falling out. All changes in the gums and investing structures of the teeth of an inflammatory nature we have designated under the general term, "gingivitis." The term gingivitis may be qualified to fit the pathology of any given case, as acute ulcerative, chronic suppurative, chronic recessive, and so forth. Gingivitis may be defined as an acute, subacute, and chronic inflammatory reaction in the gums, and soft, teeth investitures, progressing unless checked to a periostitis and osteitis. It is characterized pathologically, and objectively with variations, by redness, edema, swelling, surface granularity, ulceration, suppuration and the establishment of deep gingival sulci. Terminally loss of teeth ensues. It is characterized subjectively often by nothing, at times by extreme pain and tenderness in the gums and jaws, with teeth grinding, and more often by bleeding, bad taste, and foul breath. Indeed, many of the objectionable breaths are due to the gaseous production of gas-forming cocci in gingival pockets. Thus gingivitis, all forms of inflammatory reactions in the gums, is inflammatory and as such is infectious in origin. Gingivitis is present, in confirmation of some, in spite of other, widely advertised dental creams and powders, in about 90 per cent of our population in some form or other. This does not mean that 90 per cent of us have pus pockets or are losing our teeth, but it does mean that we have sufficient potential to reach this end condition, given time enough. Gingivitis, acting as a composite focus of infection or portal of entry for microorganisms of a virulent or low grade character, is one of the most important and frequent sources of infection in the body protective mechanism. The early recognition is thus of added importance, and its complete control one of the greatest prophylactic and preventive situations confronting us today. With the early recognition, eradication and control of gingivitis, a great many of the chronic manifestations of midlife and later may be forestalled. The gingivitis, the seat of inflammation, offers one of the best multiple portals of entry for such microorganisms

as the streptococcus to be picked up by the subgingival lymphatics and blood vessels for distribution throughout the body that I know of. In this sense both as portals of entry and as potential focal sources the gingival position is the most important in the study of focal infection and control of distant manifestations, such as rheumatism, myocarditis, nephritis, arthritis and so forth. The successful treatment does not depend upon any one or two procedures, methods, or drugs, but a mass attack using every available method against conditions found in the individual mouth. There is no one specific cause for gingivitis and there is no one specific treatment. If cavities and caries are present, they must be corrected. If bridges, crowns, etc., are wrong they must be corrected. The therapeutic measures are many, but the aniline dyes, arsphenamine, emetine, Dakin's solution, hot water irrigations, sodium perborate, hydrogen peroxide, combined in some combination to fit the bacteriologic flora are the best remedies we have found so far. The problem of gingivitis is one of the largest and most important phases of our medicine as it stands today. The disease in the majority of cases goes unrecognized in the early stages, runs a long-continued course, finally terminating in pockets, destructions, recessions, and loss of teeth. A plea for early recognition and adequate prophylaxis is made, and if carried out, many of the terminal changes will be avoided. The high points of a study of over 4,000 cases are reported from an etiologic standpoint, and the following conclusions are drawn: 96.4 per cent show the presence of spirochete, 71.6 per cent show the presence of *E. gingivalis* (Gros.), 66.6 per cent show a definite bacterial flora. Gingivitis will subside and can be absolutely kept under control by appropriate therapeutic measures intelligently applied.—C. L. Woodbridge, M. D., Montgomery.

Deaver on Affections of the Lower Abdomen

Record-Journal, December, 1927.)

It would be impossible to abstract an article such as this filled, as are all of Dr.

Deaver's discussions, with facts and words of wisdom, without leaving out much that is of value. Therefore to bring out only its more important facts and observations, will be here attempted.

Appendicitis is the most common affection of the lower abdomen, and the pelvic type is the most frequently wrongly diagnosed. By pelvic is meant when the appendix extends into or lies wholly within the true pelvis. This condition is frequently diagnosed diverticulitis of the sigmoid, or in the female confounded with inflammatory conditions of the reproductive organs. In connection with diagnosis he emphasizes the value of careful rectal and vaginal examination, history, left-sided pain, bilateral and vesical symptoms.

Dr. Deaver is emphatic in his belief that chronic appendicitis, as such, is a clinical entity and may be solely responsible for existing symptoms. Sometimes this responsibility is shared by co-existing affections of other viscera. He quotes Sir Berkeley Monyihan's well known dictum that most of the ulcers of the stomach and duodenum come from the appendix, adding "Before deciding upon a diagnosis in an abdominal ailment, think first, last and always of the appendix." That the removal of it does not always clear up the existing symptoms is proof only of an incomplete diagnosis.

Physical examination is of prime importance, but the patient should have the advantage of every known diagnostic method. By this he evidently refers to laboratory aids. Older surgeons recall how strenuous Deaver was in his opposition to them and was particularly harsh in his ridicule of the value of blood counting. He has seen the light.

A less common condition is diverticulitis of the sigmoid. There are three clinical varieties, the differentiation of which is not always possible or important, except in the perforative type, where excruciating pain and tenderness are very marked. Treatment consists of anatomic and physiological rest: gastric lavage, local applications of cold, and morphia sufficient to arrest peristalsis. Surgery is out of place except where there is a definite collection of pus, and then

only for drainage. Diagnosis is based on history, constipation, sheep manure stools, much intestinal gas with inability to pass it free enough to give relief, more or less left sided abdominal pain with tenderness, and rectal examination.

If a tumor is present one must note whether it is of an inflammatory or non-inflammatory type. Noting the temperature, pulse rate, and blood picture will help. An inflammatory process in the male may indicate proctitis or psoas abscess, and in the female an ovarian cyst with twisted pedicle, or a suppurative pelvic cellulitis, usually post-peuperal. Occasionally a deep abscess of the abdominal wall complicates intra-abdominal malignancy.

Taxis in the reduction of strangulated hernia is life-taking, not life-saving. It is responsible for much of the high mortality, fifty per cent. Reduction by this method frequently fails to produce relief, and when operation is performed it frequently shows the presence of blood or bloody fluid in the sac containing streptococcus or colon bacillus. Sometimes there is hemorrhage into the bowel wall or mesentery, precipitating gangrene and necessitating resection.

In the female the more common pelvic conditions are usually recognized and properly diagnosed. In the presence of acute inflammation a differential diagnosis must be made from appendicitis. Here a precipitous abdominal operation might spell disaster. If there is a collection of pus in the pelvis, incision in the roof of the vagina posterior to the cervix is all that is necessary; do not attempt to find the pus pocket.

A mistake in diagnosis is frequently made between uterine fibroids and chronic pyosalpinx, when there is organized tubal and peritubal exudate, with tubes adherent to the sides and posterior surface of the uterus, producing a hard mass. But this mistake is of little importance as both conditions need operation.

Dr. Deaver does not treat fibroids of the uterus with radium or X-ray when operation is not contraindicated. He believes that the choice of method should be in the hands

of the surgeon. He has seen many bad complications as a result of radium misused. If radiation is resorted to, it should not be given in sufficient doses to destroy the function of the ovaries.

Intra-ligmentary cysts are difficult of diagnosis. They are usually fixed, of smooth contour and displace the uterus to the opposite side. The papilliferous cyst carcinoma is most frequently diagnosed at operation only. It should be suspected in a female past middle life, with free or encysted fluid in the abdomen, an irregular hard mass behind and to the side of the uterus with cachexia or color suggestive of a serious condition. Patients with this disease can usually be relieved and life prolonged by operation.

The differential diagnosis between tubal pregnancy and ruptured blood cyst of the ovary in young women is among the emergency problems in diseases of the lower abdomen. Tubal pregnancy is usually diagnosed before operation by history, condition of the patient, and the blood picture, in which the characteristic point is high leukocytosis; the high hemoglobin and red count do not change for some hours. Operation must not be delayed in these cases. The most fatal type is where rupture occurs at the utero-tubal junction. Blood transfusion is rarely necessary, but saline infusion frequently. A ruptured ovarian blood cyst is not always recognized before operation. This failure is not important if the seriousness of the hemorrhagic condition is recognized and immediate operation is resorted to.

B. I. GOLDEN, M. D.

Cystocele

Dr. J. Bright Banister of London, England, reports a case of a woman fifty-six years of age, who has had four children. She has been complaining for several years of a bearing down feeling and of a lump which appears at the vulva when she walks. For the last two years she had had very

marked bladder symptoms. At operation the cervix was not very abnormal, there was no great hypertrophy nor any deep laceration. He stated that in as much as the patient was past the menopause, he would endeavor to cure the cystocele by means of the interposition operation, *i.e.*, open the anterior peritoneal pouch, draw the uterus out and with it push up the bladder. Before doing this he made a longitudinal incision in the anterior vaginal wall and separated the vaginal mucous membrane from the bladder. The next step was to form a new perineum and he called attention to two small points in the technic employed: In the first place, the last deep suture is made to enter at the extreme lateral angle of the denuded area. This suture passes close to the cut edge of the vaginal wall and picks up in its bite the tissue at the apex of the separation of the vagina from the rectum; then passes round the opposite wall, quite close to the cut edges and emerges at the opposite lateral angle. The other point is the continuous suture of the vaginal wall. He also calls attention to the fact that these deep perineal stitches must be tied so as not to strangle the tissues contained therein.—*International Clinics*, December, 1927.

Smallpox Increase

An increase of approximately 300 cases in the incidence of smallpox throughout the United States for the week ended March 10 of this year as compared with the corresponding week of 1927, has been reported to the United States Public Health Service by state health officers, according to the weekly review on the prevalence of communicable diseases, made public March 31.

In this connection, the surgeon general, Dr. Hugh S. Cumming, stated orally that the prevalence of smallpox is increasing in rural districts, apparently due to the lack of vaccination enforcement. In urban areas, he stated, vaccination is more rigidly enforced with the result that the disease is decreasing in prevalence.

TUBERCULOSIS ABSTRACTS

(Copy furnished by the West Virginia Tuberculosis and Health Association)

Family History

Opie emphasizes that close contact, such as occurs in the family, is an important item in the history. Children and adults in families of which some member is tuberculous with sputum containing bacilli, are usually infected with tuberculosis and the infections are often severe. Henry believes that well-defined contact, especially in childhood, is a good basis for suspecting tuberculosis. The ideal contact is a baby associating with the mother.

Fatigue

Hawes lays stress on the constitutional symptoms, most important of which are chronic fatigue, under fatigue, ease of tire and loss of strength. Miller states that loss of strength is the most outstanding symptom of active pulmonary tuberculosis. Homan says fatigue is one of the earliest and most important symptoms.

Hemoptysis

All writers appreciate the significance of hemoptysis. Bray classes it as the most suggestive of the local symptoms. The amount of expectorated blood varies from a few drams to several ounces. Copious hemorrhages speak for the more advanced stages. A small amount of blood must be interpreted cautiously because of the difficulty in determining its origin. "A physician who fails to realize the significance of hemoptysis," says Minor, "is playing with life."

Anorexia, nausea and other functional gastrointestinal derangements, states Bray, are not uncommon. They may be the first manifestations and present throughout the course of the disease.

Cough

Homan believes that any cough which persists for more than two or three weeks usually means something more serious than an ordinary cold or bronchitis and should call for careful consideration. Miller states, that any cough that persists for one month or longer should be thoroughly investigated as to the possibility of its being tuberculous in origin. While this is a symptom and complaint common to all respiratory infections, it is particularly so in cases of tuberculosis characterized by a catarrhal onset.

A history of pleurisy with effusion should

always arouse suspicion. It may be agonizing but more often it is dull-aching in character. It is unilateral and for the most part confined to the base. According to Homan, 90 per cent of pleurisy is of tuberculous origin.

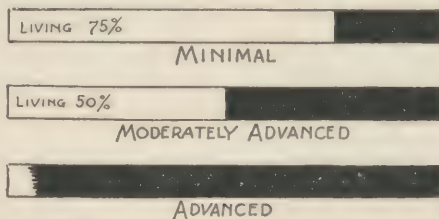
Temperature

Afternoon or evening temperature of 99 degrees or over needs explanation, says Webb,

and the temperature should be studied for at least a week with the patient in bed. One or two readings in the office are not reliable. Sewall adds, "when there is a periodic afternoon rise in mouth temperature of one-half degree, increased after exercise, the evidence for tuberculous infection is strengthened; sub-normal temperature points in the same direction if to a different phase."

All writers agree that the auscultatory findings are most important. Otis places his main reliance upon the findings of persistent fine rales at the apex. They are definitely abnormal and almost pathognomonic of tuberculosis, though not always of active cases.

Subsequent Results of Treatment of Tuberculosis in Relation to Stage of Disease



Bardswell analyzed the results of treatment covering 10,000 cases discharged from English sanatoria. Of those diagnosed minimal tuberculosis on entrance, 75% were alive five years later; of the moderately advanced, 50%, and of the advanced, "a small per cent only" were alive. (TUBERCLE, Volume VI, October, 1924.)

THE WEST VIRGINIA MEDICAL JOURNAL

JAMES R. BLOSS, *Editor-in-Chief* - - - - - Huntington

...ASSOCIATE EDITORS...

J. HOWARD ANDERSON
Marytown

WALTER E. VEST
Huntington

C. A. RAY
Charleston

HARRY M. HALL
Wheeling

THE JOURNAL issued on the first of each month. Entered as second-class matter, January 1, 1926. Acceptants for mailing at special rate of postage provided for in Section 1103, Act of October 3, 1917. Authorized July 24, 1919.

Subscription to Members.....	\$2.00 Per Year
Subscription to Non-Members.....	\$3.50 Per Year
Single Copies.....	50 Cents

OFFICERS

President:
C. A. RAY.....Charleston

First Vice-President:
D. G. PRESTON.....Lewisburg

Second Vice-President:
E. L. ARMBRECHT.....Wheeling

Third Vice-President:
W. C. SWANN.....Huntington

Executive Secretary:
MR. JOE W. SAVAGE.....Charleston

Treasurer:
T. MAXFIELD BARBER.....Charleston

Delegates to A. M. A.:
JAMES R. BLOSS (1927).....Huntington
HENRI P. LINSZ (1927-28).....Wheeling

Alternates:
A. A. SHAWKEY (1927).....Charleston
HARRY M. HALL (1927-28).....Wheeling

COUNCILLORS

Chairman of the Council for 1928:
R. H. DUNN.....South Charleston

First District:
H. R. JOHNSON (1-year term).....Fairmont
C. G. MORGAN (2-year term).....Moundsville

Second District:
C. H. MAXWELL (1-year term).....Morgantown
C. H. HALL (2-year term).....Elkins

Third District:
JOHN FOLK (1-year term).....Bridgeport
I. D. COLE (2-year term).....Clarksburg

Fourth District:
J. E. RADER (1-year term).....Huntington
W. E. VEST (2-year term).....Huntington

Fifth District:
J. HOWARD ANDERSON (1-year term).....Marytown
H. G. STEELE (2-year term).....Bluefield

Sixth District:
R. H. DUNN (1-year term).....South Charleston
H. A. WALKUP (2-year term).....Mt. Hope

¶ All original articles for THE JOURNAL must be made to it exclusively. Communications and items of general interest to the profession are invited from all parts of the state. Notices of deaths, removals from the state, changes of location, etc., are requested.

¶ Our readers are requested to send marked copies of local newspapers containing matters of interest to members of the medical profession. Name of sender should be given.

CONTRIBUTIONS TYPEWRITTEN

¶ Contract with present printer specifies all articles, communications, etc., MUST BE TYPED.

ADVERTISEMENTS

¶ Advertising forms will go to press not later than the tenth of each month. All advertisements must conform to the standard established by the Council of Pharmacy and Chemistry of the A. M. A.

WOMAN'S AUXILIARY

Mrs. R. V. Shanklin, Gary, President; Mrs. T. H. Harris, Parkersburg, vice-president; Mrs. W. C. Swann, Huntington, secretary; Mrs. W. D. Simmons, Slab Fork, treasurer.

Councillors

Mrs. C. G. Morgan, Moundsville, first district; Mrs. Ralph Maxwell, Morgantown, second district; Mrs. H. D. Price, Parkersburg, third district; Mrs. J. R. Bloss, Huntington, fourth district; Mrs. A. G. Rutherford, Welch, fifth district; Mrs. E. S. DePuy, Beckley, sixth district.

Delegates to Woman's Auxiliary of A. M. A.

Mrs. R. V. Shanklin, Gary; Mrs. B. S. Preston, Charleston. Alternates—Mrs. George Jeffers, Parkersburg; Mrs. W. B. Scherr, Morgantown.

STANDING COMMITTEES

Medical Defense Committee

R. H. Dunn, South Charleston, chairman; C. G. Morgan, Moundsville; I. D. Cole, Clarksburg.

Committee on Scientific Work

R. U. Drinkard, Wheeling, chairman; O. B. Biern, Huntington; A. H. Hoge, Bluefield.

Public Policy and Legislative Committee

R. A. Ireland, Charleston, chairman; R. H. Walker, Charleston; James McClung, Richwood; C. R. Ogden, Clarksburg, D. A. MacGregor, Wheeling.

Committee on Medical Education

John N. Simpson, Morgantown, chairman; W. T. Henshaw, Charleston; W. S. Fulton, Wheeling.

Committee on Professional Relations

John R. Shultz, Charleston, chairman, (1-year term); A. G. Rutherford, Welch, (2-year term); W. R. Goff, Parkersburg, (3-year term); Hugh G. Nicholson, Charleston, (4-year term); E. P. Smith, Fairmont, (5-year term).

Workman's Compensation Committee

W. A. MacMillan, Charleston, chairman; J. Ross Hunter, Charleston; R. H. Walker, Charleston.

Committee on Public Health

David Littlejohn, Charleston, chairman; John Thames, Charleston; Will McLain, Wheeling.

Surgical Section

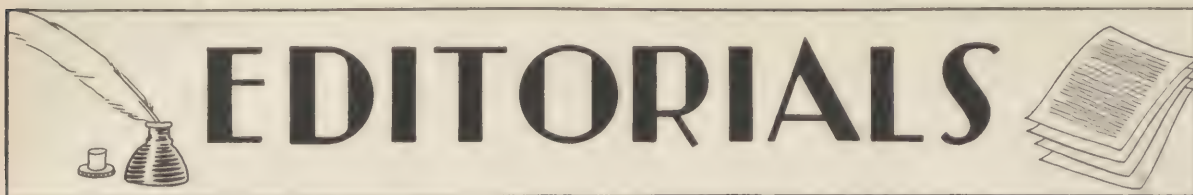
Wade H. St. Clair, Bluefield, chairman; John E. Cannaday, Charleston, secretary.

Eye, Ear, Nose and Throat Section

E. C. Hartman, Parkersburg, chairman; I. D. Cole, Clarksburg, secretary.

Hospital Association Officers

H. F. Spillers, Wheeling, president; L. W. Lawson, Logan, president-elect; J. E. Wilson, Clarksburg, first vice-president; R. A. Ireland, Charleston, second vice-president; J. S. Turk, Wheeling, treasurer.



EDITORIALS

Be At Fairmont

Make your plans now to attend the annual meeting at Fairmont on May 22-24 inclusive. Reading of the program on another page of this issue of *The Journal* will give you an idea of what to expect. The Scientific Committee has been untiring in their efforts to secure essayists from teaching centers who will present their subjects much in the manner of post graduate instruction.

The real worth of a scientific paper is brought out by a free discussion of the subject and the committee has secured the consent of many prominent physicians in the state to open the discussion of each paper presented.

The program, while much shorter than in former years, carries a number of subjects that are in a large measure new and should be of great interest to all. Make your reservations early and be present for the opening session.

Congratulations

As president of the West Virginia State Medical Association, I wish to take this opportunity to congratulate the officers and especially the secretaries of the various component societies for the exceptional showing they have made in reporting their paid-up members for 1928. The figures have just been brought to my attention under date of April 16, 1928, and I find that we are over one hundred members ahead of where we were at the same time in 1927.

On April 16, 1927, there were only 804 paid-up members of the West Virginia State Medical Association. On April 16 of the present year there were 907 paid-up members. Included in the 1928 roster are the names of 48 new members who have never been connected with the association before. Surely this is a creditable showing and it is

highly gratifying to receive such fine support and cooperation from our county societies.

The Lewis County Medical Society was the first to report a 100 per cent paid-up membership. Doddridge county was second. There are a number of the larger societies, however, that deserve honorable mention. Mercer county has only one delinquent out of 54 members. Monongalia county has three delinquents with 43 members. Taylor county has but one delinquent while Wayne county, our newest component group, has nine members and is 100 per cent paid up.

The largest membership roster in the state is held by Kanawha county with 92 names on the paid-up list. Ohio county comes second with 78 members, Cabell county third with 66 members and Harrison county fourth with 65 members. The secretaries have done remarkably well in handling their memberships. I believe the total membership this year will go over the 1200-mark.

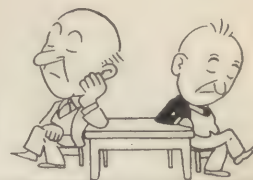
C. A. RAY, *President.*

Important Notice

To the members of the council and house of delegates of the West Virginia State Medical Association: There will be business of great importance to the association to come before these two bodies at the Fairmont meeting. It is hoped that all members will be present and on time. The council will meet at 3:30 o'clock on Monday afternoon, May 21, and the house of delegates at 8:00 o'clock on the same evening. Both meetings will be held at the Fairmont Y. M. C. A. building.



NEWS NOTES OF COMPONENT SOCIETIES



Kanawha County

The Kanawha Medical Society held a very interesting meeting in the assembly room of the Kanawha Hotel, Charleston, on the evening of April 3. The scientific papers of the meeting were presented by G. G. Irwin of Charleston on "Hypertrophy of the Prostate," and by Dr. M. I. Mendeloff of Charleston on "Chronic Nephritis."

Six new members of the society were taken in at the April 2 meeting. They were Dr. E. H. Boyer, Dr. Leo H. Mynes, Dr. Russell Kessell, Dr. W. F. Work, and Dr. M. S. Duling of Charleston and Dr. J. I. Markel of Ward. The meeting was presided over by Dr. W. W. Point, president.

A symposium on the toxemias of pregnancy featured the last meeting of the Kanawha Medical Society which was held in the public library building on the evening of April 17. It was announced during the session by Dr. J. R. Shultz, secretary, that the Kanawha Medical Society had the largest roster in its history, with 123 paid-up members for 1928.

The scientific papers of the evening were presented by Dr. James R. Bloss of Huntington on the "Toxemias of Early Pregnancy," Dr. R. E. Woodall of Charleston on the "Toxemias of Late Pregnancy," and by Dr. W. A. MacMillan of Charleston on the "Surgical Treatment of the Toxemias of Pregnancy." There was a large attendance in spite of the fact that Senator James Reed of Missouri spoke in Charleston on the same evening.

J. R. SHULTZ, *Secretary.*

Ohio County

Dr. James D. Beard of Pittsburgh, Pa., was the principal speaker before the Ohio County Medical Society at the April 13

meeting held in the Wheeling Elks Club. Dr. Beard's subject was "Cardiac Diagnosis" and "Digitalis Therapy," illustrated with lantern slides.

The meeting was presided over by Dr. John W. Gilmore of Wheeling, president of the society. Discussion of the scientific paper was opened by Dr. Harry M. Hall and Dr. A. L. Jones, both of Wheeling.

H. W. BOND, *Secretary.*

Harrison County

At the regular monthly meeting of the Harrison County Medical Society held at St. Marys Hospital in Clarksburg on Thursday evening, April 5. Dr. Edward Payne of Clarksburg read an excellent paper upon "Indigestion, a Consideration of An Important Symptom." The discussion was led by Dr. H. H. Sloan of Clarksburg.

Miss Gerda Hanson, Swedish masseur, who recently opened an office here, was introduced to the society at this meeting. It is the intention of Miss Hanson to treat only such patients as regular physicians refer to her. The Harrison county doctors are anxious to see Miss Hanson succeed, believing that the public and medical profession both will be well served if she conducts her practice in the way mentioned.

We are pleased to report that our Dr. I. D. Cole has returned from Arizona where he sojourned through the winter for the benefit of his health. He is now well again and will resume his practice here. Dr. C. O. Post, president of the Harrison County Medical Society last year, also has sufficiently recovered to resume his practice. Dr. Post lost the latter half of last year from practice because of a low grade infection of his gall bladder.

B. S. BRAKE, *Secretary.*

Barbour-Randolph-Tucker

The Barbour-Randolph-Tucker County Medical Society met at Elkins in the auditorium of the Central school building at 8 o'clock on the evening of April 6. Just prior to the meeting a short business session was held at which time Dr. C. B. Williams of Philippi and Dr. J. C. Irons of Horton were elected delegates to the Fairmont state convention and Dr. O. L. Perry of Elkins was picked as alternate.

The meeting was of a semi-scientific nature and the public was invited to attend. The paper of the evening was presented by Dr. C. H. Hall of Elkins on "Physical Diagnosis of the Chest," in which he stressed the importance of utmost care and accuracy in examinations that a correct diagnosis be made early. This great care is necessary for both physicians and patients, he said, as it would be hazardous for the physician to pronounce a case to be tuberculosis when it was not, and possibly fatal to the patient to pronounce it as not tuberculosis when it was. Dr. Hall's talk was brief but pointed and illuminating.

After the talk the national motion picture film was exhibited on the screen. The title was "Physical Diagnosis of the Chest for Tuberculosis." The picture showed the care and time taken to diagnose, that a correct finding be assured. Unfortunately the laity expect the physician to quickly diagnose a case in its incipency, however obscure, on first examination, not realizing its importance and difficulties.

J. C. IRONS, *Secretary*.

McDowell County

The regular monthly meeting of the McDowell County Medical Society for April was held at the Welch Hospital No. 1 on Wednesday evening, April 11, at 8:30 o'clock. In the absence of Dr. S. A. Daniels, president, the meeting was called to order by Dr. W. L. Peck of Coalwood. During

the meeting, Mr. Henry Tice of Welch, representing the Aetna Life Insurance Company, explained the group policy plan of insurance for physicians.

The paper of the evening was delivered by Dr. A. G. Rutherford, chief surgeon of the Welch hospital, on "The Diagnosis and Management of Ruptured Appendix." Dr. Rutherford emphasized the following points: That the incidence of appendicitis is gradually increasing as more careful diagnosis are made. With the increase in incidence there has also been an increase in mortality in these cases of ruptured appendicitis which may be attributed to the fact that there is a difference among surgeons as to the proper method of management to be adopted. Delay of the patient in entering the hospital and failure of the family physician to differentiate appendicitis from other abdominal conditions is also an important factor in increasing the mortality.

On discussing this paper, Dr. G. L. Straub brought out that the recovery of a ruptured appendix was not always due to the way the case had been handled, but to the type of infection leading to generalized peritonitis, stating that in streptococci peritonitis no case had been known to recover. Dr. Whitney discussed the role of the family physician as to the difficulties encountered along the line of home remedies before the doctor was called, stating that this and failure of the hospital to pay proper consideration to the family physician's diagnosis often resulted in many acute cases being allowed to rupture. Many other interesting points were brought out by various members of the society.

Dr. W. R. Counts followed the discussion of Dr. Rutherford's paper by presenting a series of interesting cases that have been seen in the hospital recently.

The applications of Dr. Joseph T. Peters and Dr. A. L. Carson were received and these doctors were duly elected to membership. There being no further business, the meeting adjourned at 10:45 o'clock.

A. G. RUTHERFORD, *Secretary*.

Raleigh County

The regular monthly meeting of the Raleigh County Medical Society was held at the Beckley Hotel at Beckley at 8 o'clock on the evening of April 26. The meeting was featured by an address by Dr. C. A. Ray, president of the state association, who talked on the advantages of organization in West Virginia.

The scientific paper of the evening was presented by Dr. G. G. Irwin of Charleston on "Care of the Prostatic Patient." Dr. J. R. Shultz of Charleston was also on the program with an interesting case report. A meeting of the Woman's Auxiliary was held in connection with the Beckley session.

WALTER D. SIMMONS, *Secretary*.

Preston County

The Preston County Medical Society held its quarterly meeting at the Hopemont Sanitarium on April 4 with Dr. R. D. Harman presiding. Dr. Fred A. Brown of the Hopemont Sanitarium read a very instructive paper on the subject, "Intestinal Tuberculosis." Dr. F. D. Fortney of Newburg was also scheduled to present a paper on "Vincents' Angina," but at the last minute was unable to attend the meeting.

The subject of Dr. Fortney's paper was thrown open for discussion and among those who responded were Dr. C. B. Wylie of Morgantown, Dr. H. V. King and Dr. T. Judd McBee of Morgantown and Dr. R. D. Harman of Kingwood. Following the meeting, the ladies of the Hopemont Sanitarium served delightful refreshments.

The members present were Dr. Harman, Dr. F. A. Brown, Dr. J. G. Pettit, Dr. E. E. Watson, Dr. H. N. Moser, Dr. J. J. Willingham, Dr. G. F. Evans, Dr. W. T. Dailey, Dr. E. D. Wise, Dr. R. D. Talbott, Dr. H. C. Miller, Dr. Etta Mason, Dr. S. S. Rankin and Dr. L. H. Lewis.

Visiting members from the Monongalia County Medical Society were Dr. G. R. Maxwell, Dr. C. B. Wylie, Dr. H. V. King, Dr. E. R. Taylor, Dr. T. Judd McBee, Dr. A. E. Smith and Dr. C. H. Maxwell.

L. H. LEWIS, *Secretary*.

Ohio County

Ohio County Medical Society delegates to the Fairmont meeting of the West Virginia State Medical Association were elected at a meeting of that organization held in the Elks Club at Wheeling on the evening of March 30. Those selected were Dr. E. L. Armbrrecht, Dr. M. B. Williams, Dr. R. U. Drinkard, Dr. E. S. Bippus and Dr. H. W. Bond, all of Wheeling.

The alternates named by the Ohio County Society were Dr. J. R. Caldwell, Dr. J. G. Thoner, Dr. W. T. Morris and Dr. W. T. McClure, all of Wheeling.

The scientific paper of the evening was delivered by Dr. Andre Crotti of Columbus, O., who had for his subject, "A Report of Experimental Research Work on the Etiology of Endemic Goiter." His lecture was illustrated with lantern slides. Discussion on Dr. Crotti's paper was opened by Dr. J. Schwinn and Dr. D. M. Aikman, both of Wheeling. The public was invited to attend the session.

H. W. BOND, *Secretary*.

Raleigh County

The Raleigh County Medical Society met in regular session on the evening of March 29 at the Beckley Hotel, Beckley, W. Va. Dr. Churchill Robertson of Mt. Regis Sanatorium, Salem, Va., addressed the society on the "Early Diagnosis of Pulmonary Tuberculosis," and Dr. A. U. Tieche of Beckley reported a number of interesting cases of "Tuberculosis Peritonitis."

A good attendance turned out for this meeting and a buffet supper was served following the session.

WALTER D. SIMMONS, *Secretary*.

Greenbrier Valley

The first meeting of the Greenbrier Valley Medical Society to be held in Monroe county took place at Union on the evening of March 30. Dr. G. H. Barksdale of Charleston delivered a splendid paper on tuberculosis and a good attendance turned out for his talk.

J. G. LEACH, *Secretary*.

Lewis County

Dr. C. A. Ray of Charleston, president of the West Virginia State Medical Association, was the principal speaker at the meeting of the Lewis County Medical Society held in the Baptist church at Weston on the evening of April 10. The meeting was well attended by the members of the society and their wives and several visitors were also present. Dr. Ray's talk followed a banquet dinner served at the church.

Dr. Ray spoke on the subject of "Medical Ethics" and also talked for some time about the state organization. He hoped that the membership this year would go beyond the 1200 mark and urged a campaign in Lewis county to take in the ethical non-members. Mr. Joe W. Savage, executive secretary of the state association, was also present and made a short talk on the *West Virginia Medical Journal*.

A film calling attention to the importance of early diagnosis of tuberculosis was shown through the courtesy of Dr. H. P. Neagle, Lewis county health officer.

O. L. HUDKINS, *Secretary*.

Central Tri-State

The eighth meeting of the Central Tri-State Medical Society was held at the Hotel Pritchard, Huntington, W. Va., on the afternoon and evening of April 19. The meeting was presided over by Dr. J. M. Salmon, president, of Ashland, Ky., and a banquet was served the members of the society between the afternoon and evening sessions.

The speakers for the occasion were Dr. George F. Dick of Chicago on "The Control of Scarlet Fever," Dr. H. W. Orr of Lincoln, Nebraska, on "Asteomyelitis," and Dr. William E. Lowther of Cleveland, Ohio, on "Surgery of the Ureters."

The program of the April 19 meeting of the Central Tri-State society was especially arranged to appeal to practically all of the members and the attendance was very gratifying to the officers of the organization.

F. O. MARPLE, *Secretary*.

Parkersburg Academy

The April 5 meeting of the Academy of Medicine of Parkersburg was held in the Ramble Inn with the largest attendance that has turned out this year. The speaker of the evening was Dr. Henry Wald Bettmann of Cincinnati, who gave a splendid paper on "Duodenal Ulcer." A large number of the doctors present took part in the discussion that followed Dr. Bettmann's paper.

The scientific meeting was preceded by a banquet at the Ramble Inn. In addition to a number of local visitors, there were eight visiting members of the profession from Marietta, O. This was one of the best meetings of the Academy held in the past year.

J. T. GOFF, *Secretary*.

Weston Hospital Wins

A verdict in favor of the defendant was rendered by a jury on March 26 in the case of Harry Gidley against the City Hospital of Weston, W. Va. The trial occupied an entire week on the Lewis county circuit court calendar. Medical testimony was presented by Dr. J. E. Wilson, Dr. H. E. Sloan and Dr. H. H. Haynes of Clarksburg, Dr. J. A. Rusmisl of Buckhannon, Dr. C. C. Denham of Buckhannon and a number of Lewis county doctors residing in Weston.

The plaintiff claimed improper treatment of a compound comminuted fracture of the tibia and fibula in the summer of 1924, leaving an angulation at the site of the fracture. However, it was proven by the defendant hospital that Gidley walked on this leg against the advice of the defendant, that he had removed and left off the cast, and that at different times had been intoxicated and had fallen down a number of times.

The actual defendants in the case were Dr. E. T. W. Hall and Dr. W. H. Greene of Weston. They were represented by Judge Haymond Maxwell of Clarksburg and W. R. Simmons of Weston. L. B. Barnett of Weston represented the plaintiff.

The members of the Lewis County Medical Society hailed the verdict as a well justified victory for the two members of their organization.

—O.L.H.

GENERAL NEWS

Editors Association

After being inactive for the past five years, the American Medical Editors Association was reorganized early in January, 1928, in New York City, by Dr. H. Lyons Hunt, the present president of the association. Practically all of the old members of the organization rejoined and approximately one hundred new members have made application to be taken in. A number of important committees have already been appointed to study such problems as workmen's compensation, medical journal endowment fund, standardizing medical licensing examinations, advertising, publicity and pay clinics.

The original organization was formed in 1869, the idea originating with Dr. Theophilus Parvin, editor of the *Western Journal of Medicine*. The first meeting was held on May 6 of that year and Dr. N. S. Davis, editor of the *Chicago Medical Examiner*, was selected president. The annual meeting for 1870 was held in Washington, D. C., and these annual meetings were held regularly each year until 1923. The death of Dr. Henry O. Marcy, then president of the association, brought about a temporary lapse in activities that has just recently been overcome.

It is understood that Dr. J. R. Bloss of Huntington, editor of the *West Virginia Medical Journal*, and the four associate editors have been invited to join the new organization. The associate editors of the journal are Dr. J. Howard Anderson of Marytown, Dr. H. M. Hall of Wheeling, Dr. W. E. Vest of Huntington and Dr. C. A. Ray, president of the West Virginia State Medical Association, of Charleston.

Physicist Wanted

The United States Civil Service Commission announces the following open competitive examinations: Physicist (X-ray), \$3,800; associate physicist (X-ray) \$3,000; assistant physicist (X-ray), \$2,400; physical chemist, (X-ray), \$3,800; associate physical chemist (X-ray), \$3,000; assistant physical chemist (X-ray), \$2,400.

Applications for the positions listed above must be on file with the Civil Service Commission at Washington, D. C., not later than May 8. The examinations are for filling vacancies in the federal classified service in Washington, D. C., or elsewhere. The entrance salaries in the departmental service at Washington are as indicated above. A probationary period of six months is required; advancement after that depends upon individual efficiency, increased usefulness, and the occurrence of vacancies in higher positions. For appointment to the field service the salaries will be approximately the same.

The duties of these positions will involve scientific research in X-ray investigations, such as intensity measurements, X-ray spectroscopy, absorption and scattering, crystal structure, analysis, crystallography, and other closely related X-ray studies. Competitors will not be required to report for examination, but will be rated on their education, training, and experience; and writings to be filed with application.

Full information may be obtained from the United States Civil Service Commission at Washington, D. C., or the secretary of the United States civil service board of examiners at the postoffice or custom house in any city.

ON TO FAIRMONT!

The city of Fairmont, the Marion County Medical Society, and the local convention committees hereby extend to the members



Dr. C. O. Henry of Fairmont, chairman of the committee on hotels.

of the West Virginia State Medical Association a hearty invitation to be on hand for the Sixty-first Annual Meeting to be held in the Fairmont Y. M. C. A. building on May 22-24 inclusive. This is one meeting that you simply can't afford to miss.

Take, for instance, one look at the program published elsewhere in this issue of *The Journal*. Can you afford to miss such men as Dr. Elliott P. Joslin of Boston or Dr. Dean Lewis of Baltimore? Can you afford to miss Dr. Willis C. Campbell of Memphis, Tenn., or Dr. Martin E. Rehfus of Philadelphia? Can you afford to miss Dr. Fred W. Rankin of the Mayo Clinic or Dr. Howard Lilienthal of New York City? Their names form only a small part of the

list of celebrities who will appear on the Fairmont program.

Do you play golf? The annual convention tournament will be played over the beautiful course of the Fairmont Country Club and a silver trophy will be presented to the winner. This will be a handicap affair, according to present plans, so that the chances will be equal for all golfers in the association. Dr. R. H. Dunn of Charleston is chairman of the golf tournament committee.

Do you like to bowl? The splendid alleys in the Y. M. C. A. building will be turned over to the members of the association during their stay in Fairmont.



Dr. C. W. Waddell of Fairmont, chairman of the local finance committee for the Fairmont meeting.

Do you like to swim? The Y. M. C. A. pool will also be turned over to the association members during the convention.

Do you like the social side of the convention? The annual banquet will be held on Wednesday evening, May 23, in the Fairmont Elks Club and the convention ball will follow. A fine orchestra has been secured to play for both functions and it is understood that a number of professional entertainers will be on hand to make the evening a success. And speaking of entertainers, Dr. S. H. D. Wise of Parkersburg will act as toastmaster of the banquet.

Do you like non-scientific speeches? Senator Mansfield M. Neely of Fairmont has been selected to make the after-dinner speech on a non-political subject. As an orator of the highest rank, Senator Neely needs no introduction to the people of West Virginia.

Do you like bridge? Just off the ball room of the Elks' Club is a large comfortable living room which will be turned over

going to get all these things done. In the first place the schedule of events has been so arranged that there will not be a dull



Dr. G. H. Traugh of Fairmont, secretary of the Marion County Medical Society and ex officio member of all of the local committees.



.....Dr. J. A. Reidy of Monongah, one of the members of the committee on arrangements.

on the evening of May 23 to the followers of Lentz and Work.

Perhaps you are wondering how you are

minute during your visit. In the second place, the scientific program has sacrificed quantity for quality and it is short enough to allow the usual side attractions of our conventions. In other words, this year's program will give you the very best there is without taking up all of your time. It has been arranged by the scientific committee very much along the line of post-graduate work.

This year's convention is going to be the best one that the West Virginia State Medical Association has ever held. The various local committees of the Marion County Medical Society are going to see to that. The local committees have already obtained the keys to the city of Fairmont and are waiting to turn them over. They are sparing no expense to make the 1928 meeting a success in every department.

Have you made your arrangements to get

away? If not, please do so at once. If necessary, write the executive secretary for a relief man during the three-day session. Your cronies and classmates will all be there looking for you. Don't disappoint them. Let's make this a get-together meeting to be remembered as long as the West Virginia State Medical Association continues in existence.



PERSONALS

—Dr. G. A. Smith of Montgomery is spending several weeks in the East attending the clinics.

—Dr. L. N. Yost of Fairmont, former president of the Marion County Medical Society, was recently elected president of the Fairmont Wild Life chapter.

—Dr. C. A. Ray, president of the association, attended the meeting of the Lewis County Medical Society held at Weston on the evening of April 10.

—Dr. I. D. Cole of Clarksburg, who has been in Arizona for his health for the past several months, has fully recovered and has resumed his practice. Dr. Cole is the present secretary of the eye, ear, nose and throat section of the program for the Fairmont meeting.

—Dr. C. O. Post of Clarksburg, former president of the Harrison County Medical Society, has resumed his practice after an illness of several months' duration.

—Dr. David Littlejohn of Charleston, who has been confined to his home for two months because of an illness, is now able to be out and will resume his duties with the state health department in the near future.

—Dr. and Mrs. C. F. Mahood of Alderson motored to Charlotte, N. C., where they spent the Easter holidays.

Book Reviews

The Digestive Tract

The Mechanics of the Digestive Tract by Walter C. Alvarez, M. D., associate professor of medicine in the University of Minnesota. This is the second edition rewritten with a number of new cuts. As an introduction to gastro-enterology it is a valuable contribution to medical literature. Published by Paul H. Hoeber Inc., New York.

Heart Disease

A very comprehensive little volume entitled "Heart Disease" by Professor H. E. B. Purdee of Cornell University is just from the press of Lea and Febiger. Information contained in this book is very valuable to every physician who treats heart disease and to every patient who has the disease in any of its forms. Price \$1.50 net.

Volume Received

Aluminum Compounds in Food by E. E. Smith, Ph. D., M. D.; published by Paul B. Hoeber, New York.

Treatment of Asthma

(Asthma, Its Diagnosis and Treatment, by William S. Thomas, M. D., attending physician of St. Luke's Hospital, New York.)

Considerable space is devoted to the allergic cause of the condition and manner of finding and desensitizing the system to these proteins. Autogenous vaccines and the pollens is treated in a very comprehensive manner. The text is of a style that is easily read and understood.

The chapter on general care of these patients is well worth the price of the volume. Published by Paul B. Hoeber, Inc., New York.

Thermometer Standard

A commercial standard establishing minimum requirements in the manufacture of clinical thermometers was approved at a general conference of manufacturers, distributors, and organized users of this commodity held in the Department of Commerce March 30. An announcement regarding the meeting, just made public, follows in full text:

The conference agreed that the manufacture of new thermometers under the commercial standard would begin October 1, 1928. One year, March 30, 1929, was allowed for clearance of existing manufacturer's stocks. Annual revision of the standard will be conducted by a standing committee, representative of the entire industry.

Members of the standardizing committee are: Bradford Noyes, Jr., of the Taylor Instruments Companies, Rochester, N. Y.; William L. Crounse, National Wholesale Druggists Association, Washington, D. C.; Friend Lee Mickle, of the state department of health, Hartford, Conn.; Dr. W. P. Morrill, of the American Hospital Association, Washington, D. C.; Dr. A. C. L. Percefull, of the United States Veterans' Bureau, Washington, D. C.; Herman Phillips, of the Phillips Thermometer Company, New York City; Otto W. Schlegelmilch, of the Schlegelmilch Bros., Long Island City, N. Y.; and Dr. E. F. Mueller of the Bureau of Standards, Washington, D. C.

Infant Mortality

Approximately 50 per cent of the infant mortality in the United States occurs under one month of age, 40 per cent under one week and 20 per cent under one day, Dr. Richard Bolt, assistant professor of child hygiene of the University of California, told the delegates to the fifth annual conference of state directors of maternity and infancy work, in recent address at the Children's Bureau of the Department of Labor.

The second day's conference was given

over to a discussion of infant and pre-school child problems and Dr. Bolt spoke on "causes and prevention of neonatal mortality."

"An intimate knowledge of the causes of neonatal mortality is absolutely essential to any adequate program for their prevention," Dr. Bolt said. "While our knowledge of the immediate or direct causes is gradually increasing, we still have much to learn respecting the contributing and predisposing causes and their interrelations. The studies of Mall, Wilson, Morgan, Bateson and others on the mechanism of heredity and development strengthen our belief that innate constitutional factors have a decided part to play in determining weakness or defectiveness of the individual and consequently his ability to survive under unfavorable conditions. Granting all that heredity may yield, we are forced to conclude that a number of the factors known to threaten immature life are strictly environmental and can, in large measure, be prevented by thorough prenatal care and skilled attention at the time of birth."—*U. S. Daily*.

Goiter Conference

The American Association for the Study of Goiter, consisting of internists, pathologists, radiologists and surgeons, will hold their fifth annual conference on goiter in Denver, Colo., June 18, 19 and 20.

Several men from foreign countries have signified their intention of attending. Professor Breitner of the Von Eiselberg Clinic, Vienna, and Professor Albert Kocher of Berne, Switzerland, have accepted places on the program. Addresses and discussions on Prophylaxis, Medical Treatment, Endemic Goiter and Cretinism from the Public Health Standpoint, are on the program for the first afternoon.

Pathology and various phases of surgical treatment will be considered the last two afternoons. All members of state medical societies are invited to attend. Dr. Gordon S. Fahrni of Winnipeg, Canada, is the president and Dr. Edwin Kinard of Kansas City is vice president.

Quack Results

The life of a quack is not all sunny, either with mental satisfaction or financial return, Dr. George E. Keller shows in an expose in *Hygeia*, the health magazine of the American Medical Association.

Having read the flowery testimonials current magazine and newspaper advertising of everything from drops to excite the love-making mechanism to cancer cures, Dr. Keller was moved to wonder whether the persons behind them ever got any adverse answers. From various persons he obtained lists of patients, most of the firms appearing to have lists of prospects for sale.

He mailed out 2,000 cards and in fifteen days had received 1,000 replies. Below are a few of the acrid comments on them:

"Do you call that ethical?"

"You will have to quack louder than that to get my \$1."

"I'll bet you don't belong to your medical society."

"Ill bet you got my name from Dr. Coffey."

"I'd like to sue the man who is giving away my name to all you crooks." And so on.

Many fell for the graft and to these Dr. Keller returned their money. He found from correspondence with many of the advertising "specialists" that although they took in enormous amounts of money, they had only modest amounts left after deducting expenses. From \$5,000 to \$8,000 a year was the average gain, about what the average physician and surgeon makes, Dr. Keller concluded.

State Hospital Data

The hospital number of the *Journal of the American Medical Association* was received on March 26 and contained a number of interesting facts regarding hospitals in West Virginia. The hospital report of the A. M. A. came as a result of a survey or special census made during the present year and the statistics are not obtainable elsewhere.

There are 59 general hospitals in West Virginia, according to the A. M. A. statistics, with a total capacity of 3,561 beds. These hospitals have an average occupancy of 2,040 patients, the percentage of occupancy being 57.2 per cent. This percentage is somewhat lower than the average occupancy for all general hospitals in the United States, which is 66 per cent.

In all, there are 79 registered hospitals in this state with 8,776 beds and an average of 6,322 patients. There are also 424 bassinets, or a grand total capacity of 9,200 beds for all hospitals in West Virginia. There are four nervous and mental hospitals in this state with a capacity of 3,808 beds and having 3,239 patients.

The hospital number of the A. M. A. *Journal* gives a complete list of all hospitals in West Virginia that are admitted to the A. M. A. hospital register, with the name and location, the type of service rendered, the capacity, and the average number of patients. In addition, the special number indicates the state hospitals approved for the training of internes, for residencies in specialties, and approved by the American College of Surgeons. The status of each hospital regarding nurse training is also indicated.

Three West Virginia hospitals are approved for internships by the council on medical education and hospitals and two are approved for residencies in specialties. Two hospitals in this state with capacities of 33 beds each were not admitted to the register.

The clinical laboratory of the St. Luke's Hospital, Bluefield, is the only one in this state approved by the council on medical education and hospitals, according to the A. M. A. *Journal*.

The convalescent hospital at White Sulphur Springs, listed in the A. M. A. directory, bears the distinction of being one of the oldest institutions of its kind in the United States, having been established in 1778. The Philadelphia General Hospital is the oldest, having been established in 1734. Two other Philadelphia institutions were established in 1751 while the Eastern State Hospital at Williamsburg, Va., was established in 1768.

Negro Death Rate

The negro death rate in West Virginia for the year 1927 was almost double that of the white race, the negro rate being 18.1 while the white was 9.7, according to figures released by the division of vital statistics of the state health department in connection with the fourteenth observance of National Negro Health week, April 1-8. The general death rate for the state was 10.2.

Among the chief causes of negro deaths are listed accident, tuberculosis, heart diseases, pneumonia and kidney diseases. Accidents which are given as the greatest cause of deaths in both white and negro races, showed a death rate of 155.6 per 1000 negro deaths. On the same basis the tuberculosis death rate was 109.1, organic heart disease 77.8, pneumonia 72.8 and nephritis 69.1. Next to accidents, diseases of the respiratory organs appear to be particularly prevalent and especially fatal among negroes.

The negro birth rate shows little change in 1927. There were 2589 negro births reported to the state health department in 1927, as against 2610 in 1926.

A comparison of the birth and death figures shows that the negro birth rate fell below the average birth rate for the county, which was about two and one-half births for every death.

The illegitimacy rate was much higher in the negro race than the white, being 8.6 of all the negro births reported, while the white was 2.9.

John A. Burke, M. D.

Dr. John A. Burke, 61 years of age of Crawford, Lewis county, W. Va., died suddenly while attending a patient at Duffy, W. Va., on the afternoon of March 20. He had ridden a distance of five miles on horseback to attend a woman suffering from influenza and succumbed a few minutes after reaching her home.

Dr. Burke was graduated from the Fair-

mont Normal School and received his degree from the University of Louisville. Since that time he has lived and practiced his profession in Lewis County. The deceased is survived by his wife and four children, Mrs. Grace Becker of Clarksburg, Lawrence B. Burke of Walkersville, Miss Peter Crawford of Crawford and Miss Vera Burke, who made her home with her parents. His mother, Mrs. Arch Burke of Glenville, and one brother, Dr. L. B. Burke of Fairmont, also survive.

Dr. Burke was never affiliated with the West Virginia State Medical Association nor with the Lewis County Medical Society. He belonged to the old school of practitioners, however, and had a host of friends and admirers throughout Lewis county.

Charles Milton Brown, M. D.

Dr. Charles Milton Brown of Mt. Hope died at his home there on March 8 at the age of 58 years. He had been a member of the West Virginia State Medical Association for the past 12 years and was one of the best known physicians of Fayette county. His death followed an extended illness and he was buried in the family plot at Mt. Hope.

Dr. Brown graduated from the University of Maryland Medical College in 1902 and had practiced in this state since that time. He was first located at Huntington and later at Forest Hills in Fayette county. He moved to Mt. Hope several years ago where he made his home until his death.

Logan County's Record

The 1928 membership record of the Logan County Medical Society is the best that has thus far been sent in. Logan county has added nine new members to its roster this year and now has a 100 per cent paid-up list of 44 members. Dr. P. B. Wingfield is the secretary of this splendid society. The president is Dr. R. R. Vaughn of Dehue.

Mount Regis Expands

Dr. Everett E. Watson of Salem, Va., recently announced the inauguration of a new building program at the Mount Regis Sanatorium at Salem. It is understood that an addition was constructed onto the main building increasing the size of the nurses' quarters and the culinary department. Several rooms are also being added to the Page cottage.

The Mount Regis Sanatorium is well-known to West Virginia doctors and is in charge of Dr. Watson and Dr. Churchill Robertson.

Health Legislation

A favorite argument used by opponents of health legislation is the exaltation of sanitation as a cure-all, says Prof. E. P. Lyon in an appeal to the American citizen to inform himself as to what medical science is, published in the April *Hygeia*.

Sanitation is defined as the science of disease prevention. How then is disease to be prevented without knowledge of the disease? asks the author.

Say the objectors: "Doctors cannot cure typhoid fever. It is pure milk and pure water that prevent it. Look at yellow fever! How did they dig the Panama Canal? By cleaning up the canal zone—by sanitation. Drugs are no good. Vivisection never revealed any valuable facts."

Sanitation is a part and only a part of medical science, made possible by the study of disease at the bedside, in the laboratory, by animal, bacteriologic and chemical experiments and by countless observations. Those who advocate sanitation advocate medical science without knowing it.

The cause of typhoid fever and the cause of yellow fever were discovered by the doctor, the laboratory investigator and the scientist, the very persons that these opponents seek to discredit.

When such enemies of science appear before legislatures to propose weakening of health laws and hampering of research, few

citizens take interest enough to safeguard the blessings that science has unfolded. The campaign against medical science is dangerous. Dr. Lyon begs that citizens will fight for freedom of research for the protection of society and the elimination of disease.

Medical Malpractice Suit*

By CZAR JOHNSON, M.D., F.A.C.S.
Lincoln, Nebraska

A suit for damages for alleged malpractice is a spectre which the doctor has never been able to accept with equanimity.

Notwithstanding that great scientific progress has been made in the field of preventive medicine, I have been unable to find any organized education program for the prevention of alleged malpractice. The well established doctrine that testifying against a brother physician is a fraternal and ethical misdemeanor, and weekly abstracts of court decisions bearing upon the subject of malpractice published by medical journals are post mortem examinations rather than preventive medicine. In a majority of states medical defense committees assist in some capacity in the defense of malpractice suits.

The creation of State Medical Defense Committees marked a radical departure from long established customs of the medical profession and added to scientific and purely professional activities, sociologic and economic problems. I assume that the purpose of the defense committee, as conceived and instituted by organized medicine, was mutual protection and assistance in the event of unavoidable misfortune from unwarranted prosecution for alleged negligence or malpractice instigated by malicious, ignorant or selfish individuals. I assume that experience had taught those who were instrumental in the foundation of medical defense committees that the public is frequently careless in its acts and speech, often indifferent to medical problems and that it, and also the medical profession,

* From the Bureau of Legal Medicine and Legislation of the American Medical Association.

may harbor individuals who are malicious or avaricious. If my assumptions are correct, there is a legitimate reason for the existence of these committees. If there is a good reason for their existence there is an equally good reason for maximum efficiency without loss of the attributes of the profession.

In the past, so far as I have been able to learn, active defense of malpractice suits has been the only function of these committees. I admit the necessity of efficient defense, but here, as elsewhere, an ounce of prevention is better than a pound of cure.

The causation of suits for malpractice may be placed in one or more of the following classes:

1.—Malicious; either personal or professional, for personal, professional or financial gain.

2.—Circumstantial; wherein a combination of circumstances, misunderstanding or perversity of physical laws or the laws of health are contributing factors.

3.—Comparative; wherein both the physician and the patient contribute through carelessness, ignorance, indifference, misunderstanding or physical imbalance.

4.—Judgment; wherein the elements of the case are materially the result of the judgment used by the physician, who is not infallible.

5.—Inexcusable; where, because of incompetence, negligence, indifference or unwarranted treatment, disaster results.

The laws of all states governing malpractice provide reasonable protection, and the courts have never required the impossible nor more care and attention than is the custom in the locality in which the physician practices.

Sometimes it is difficult to determine the prevailing custom. This lack of definiteness, when it exists, is an open invitation to malpractice suits and a most serious condition in the face of legal difficulties.

This, I think, presents our present status and my own theory of the properties incident thereto.

Preventing Malpractice Suits—I now invite your consideration of the feasibility of methods calculated, not to defeat actions instituted, but to discourage and prevent their institution.

1.—The unit of value is the doctor. Physicians, individually and collectively, should have a working knowledge of the legal phases and acts that are free from liability; acts that are liabilities; and those that are borderline liabilities.

2.—Written records of clinical history, physical and laboratory examinations, treatment and charges should be the inflexible rule. This does not require a voluminous document. Precise, accurate notes take but little time and space and are extremely valuable. The practice develops accuracy and concentration, prevents neglect and omissions, acts as a barometer in the treatment, has an excellent psychologic effect, and is a sheet anchor in malpractice suits.

3.—Consultations are a protection. They distribute responsibility, prevent mistakes and omissions, develop esprit de corps and prevent malpractice suits.

4.—A reasonable, standardized obstetrical and surgical technic; treatment of fractures; use of electrical apparatus, intravenous and new and unofficial drugs; new and unofficial diagnostic reagents and the therapy of infectious diseases should be adopted in each locality. I appreciate that this will, to a limited degree, interfere with personal initiative; however, it will at the same time safeguard the public and the profession, which is more important.

A physician who is unwilling to accept guidance or conform to established conventions has no moral right to expect or receive collective assistance, and I doubt that the medical profession has the right to risk its reputation or spend money to defend such an individual.

5.—The medical profession has been unable to escape the problem of economics. Disproportionate and nonuniform fees for apparently the same relative value of work and excessive fees for incompetent work cause, in many instances, dissatisfaction

and are frequently the primary cause of malpractice suits.

6.—Demoralizing credit extension has become a serious problem. The practice of charging the rich an excessive fee on the pretext of being able thereby to render service to the poor is not charity and is too often the source of legal difficulties. It is a hybrid form of business. The terms rich and poor are relative and often vague. In actual practice the custom resolves itself into charging the individual who is thrifty and pays his obligations promptly an excess fee, in order to be able to render service for those who will pay the butcher, garage, gas station and movie theatre but who never

acquire the moral or financial integrity to include the doctor. On the other hand, deserving charity should never be eliminated from the profession and can always be given without material loss.

There are many details in the prevention of malpractice that could with profit be added to a prevention program. I have endeavored to show in a general way that this phase of medical practice is deserving of more study and attention than has been accorded it in the past. If I succeed in irritating a sufficient number of physicians to stir up a prevention program, I will have, in Army parlance, "accomplished my mission."

OFFICIAL CALL

To the Officers, Delegates and Members of the West Virginia State Medical Association:

The sixty-first annual meeting of the West Virginia State Medical Association will be held in the Fairmont Y. M. C. A. building, Fairmont, W. Va., from Monday, May 21 to Thursday, May 24, 1928.

The Council will convene at 3:30 o'clock on the afternoon of May 21 at the Fairmont Y. M. C. A. building.

The House of Delegates will convene at 8 o'clock on the evening of May 21 at the Fairmont Y. M. C. A. building.

The general scientific assembly will meet for the first time at 10 o'clock on the morning of May 22 in the auditorium of the Fairmont Y. M. C. A. building.

The surgical section will convene at 9 o'clock on the morning of May 23 in the reception room of the Fairmont Y. M. C. A. building.

The eye, ear, nose and throat section will convene at 9 o'clock on the morning of May 23 in the dining room of the Fairmont Y. M. C. A. building.

The section on internal medicine will meet

at 9 o'clock on the morning of May 23 in the auditorium of the Fairmont Y. M. C. A. building.

The annual address of the president, the oration on medicine and the oration on surgery will be delivered at a meeting open to the public at 8 o'clock Tuesday evening, May 22, in the auditorium of the Fairmont Y. M. C. A. building.

The registration department will be open in the Fairmont Y. M. C. A. gymnasium at 10 o'clock on the morning of May 21 and will remain open until 8 o'clock the same evening. Thereafter it will remain open from 8:30 o'clock a. m. until 8:30 o'clock p. m. until the close of the convention.

Respectfully,

JOE W. SAVAGE,

Executive Secretary.

Announcements

The sixty-first annual convention banquet of the West Virginia State Medical Association will be served on Wednesday evening, May 23, at 7 o'clock in the dining room of Unfinished Business.

Powers and Anderson of Richmond, Va. the Elks Club. There will be a cover charge of \$2.00 per plate and tickets will be on sale at the registration desk.

The annual convention golf tournament will be played over the nine-hole course of the Fairmont Country Club. A small entrance fee will be charged to defray the expense of a suitable trophy for the winner.

The annual meeting of component society secretaries will be held at noon on Wednesday, May 23, in the dining room of the Y. M. C. A. building and a luncheon will be served at that time. Each secretary will be expected to report the activities of his society and to make suggestions for the improvement of all societies at this round table conference. The election of officers for the ensuing year will be held at this meeting.

The alumni of the Medical College of the University of Virginia will hold a luncheon in the private dining room of the Y. M. C. A. at noon on Thursday, May 22.

The Y. M. C. A. swimming pool will be turned over to the members of the association during the entire four days of the convention.

The annual convention dance will be given in the Elks' Club ball room on the evening of Wednesday, May 23.

All members of the association, their wives and guests, are urged to register immediately upon arrival.

Order of Business

For the council sessions, the order of business will be as follows:

- Call to order by Council Chairman.
- Report of Committee on Scientific Work.
- Report of Committee on Publication.
- Report of Committee on Public Policy and Legislation.
- Report of Committee on Public Relations.
- Report of Committee on Permanent Home.
- Report of Secretary.
- Report of Treasurer.
- Report of Auditing Committee.
- New Business.

For sessions of the House of Delegates, the order of business will be as follows:

- Call to order by the President.
- Receiving Credentials.
- Report of Committee on Scientific Work.
- Report of Committee on Publication.
- Report of Committee on Public Policy and Legislation.
- Report of Committee on Public Relations.
- Report of Committee on Permanent Home.
- Report of Special Committees.
- Report of Secretary.
- Report of Treasurer.
- New Business.
- Unfinished Business.

Election of Officers

The election of officers to serve the West Virginia State Medical Association during the year of 1929 will be held at the house of delegates meeting to be held in the reception room of the Y. M. C. A. building at 8:30 o'clock on the morning of Thursday, May 24.

Commercial Exhibits

The West Virginia State Medical Association is indeed fortunate in having this year such a splendid representation of commercial exhibits. Practically every manufacturing line of interest to the medical profession will be displayed in the gymnasium of the Fairmont Y. M. C. A. building by many of the biggest and best corporations in America. All members of the association and all visitors to the convention are urged to visit these exhibits and to see and examine the excellent products on display:

The list of exhibitors that have already signed up for space follows:

- Kelley-Koett Manufacturing Company of Covington, Ky.
- Kalak Water Company of New York City.
- Feick Brothers of Pittsburgh.
- West Virginia State Health Department.
- E. R. Squibb and Company of New York City.
- Max Wocher and Sons of Cincinnati.
- Victor Xray Company of Chicago.

Mellins Food Company of Boston, Mass.
Columbus Pharmacal Company of Columbus, O.

Cameron Surgical Specialty Company of Chicago.

Merrill-Soule Company of Syracuse, N. Y.
Wappler Electric Company of New York City.

Engeln Electric Company of Pittsburgh and Cleveland, O.

National Drug Company of Philadelphia.
Deshell Laboratories of Chicago.

Officers for 1928

President—C. A. Ray, Charleston.

First Vice President—D. G. Preston, Lewisburg.

Second Vice President—E. L. Armbrecht, Wheeling.

Third Vice President—W. C. Swann of Huntington.

Councillors

Chairman—R. H. Dunn, So. Charleston.

First District—Brook, Hancock, Marion, Marshall, Ohio, Taylor, and Wetzel counties; one year term, H. R. Johnson of Fairmont; two year term, C. G. Morgan of Moundsville.

Second District — Barbour, Berkeley, Grant, Hampshire, Hardy, Jefferson, Mineral, Monongalia, Morgan, Pendleton, Preston, Randolph, and Tucker counties; one year term, C. H. Maxwell, of Morgantown; two year term, C. H. Hall of Elkins.

Third District—Braxton, Clay, Calhoun, Doddridge, Gilmer, Harrison, Nicholas, Ritchie, Lewis, Upshur and Webster counties; one year term, John Folk of Bridgeport; two year term, I. D. Cole, Clarksburg.

Fourth District—Cabell, Jackson, Mason, Putnam, Pleasants, Roane, Tyler, Wood and Wirt counties; one year term, J. E. Rader, of Huntington; two year term, W. E. Vest of Huntington.

Fifth District—Lincoln, Logan, McDowell, Mercer, Mingo, Monroe, Summers, Wayne and Wyoming counties; one year term, J. Howard Anderson of Hemphill; two year term, Harry G. Steele of Bluefield.

Sixth District—Boone, Fayette, Green-

brier, Kanawha, Pocahontas, and Raleigh counties; one year term, R. H. Dunn of South Charleston; two year term, H. A. Walkup of Mt. Hope.

Standing Committees

Medical Defense

C. G. Morgan, Moundsville, chairman;
Harry G. Steele, Bluefield, and H. A. Walkup, Mt. Hope.

Committee on Scientific Work

R. U. Drinkard, Wheeling, chairman; O. B. Biern, Huntington; A. H. Hoge, Bluefield.
Public Policy and Legislative Committee

R. A. Ireland, Charleston, chairman; R. H. Walker, Charleston; James McClung, Richwood; C. R. Ogden, Clarksburg; D. A. MacGregor, Wheeling.

Committee on Medical Education

John N. Simpson, Morgantown, chairman;
W. T. Henshaw, Charleston; W. S. Fulton, Wheeling.

Committee on Professional Relations

John R. Shultz, Charleston, chairman, (1-year term); A. G. Rutherford, Welch, (2-year term); W. R. Goff, Parkersburg, (3-year term); Hugh G. Nicholson, Charleston, (4-year term); E. P. Smith, Fairmont, (5-year term).

Workmen's Compensation Committee

W. A. MacMillan, Charleston, chairman;
J. Ross Hunter, Charleston; R. H. Walker, Charleston.

Committee on Public Health

David Littlejohn, Charleston, chairman;
John Thames, Charleston; Will McLain, Wheeling.

Surgical Section

Wade H. St. Clair, Bluefield, chairman;
John E. Cannaday, Charleston, secretary.

Eye, Ear, Nose and Throat Section

E. C. Hartman, Parkersburg, chairman;
I. D. Cole, Clarksburg, secretary.

Hospital Association Officers

H. F. Spillers, Wheeling, president; L. W. Lawson, Logan, president-elect; J. E. Wilson, Clarksburg, first vice-president; R. A. Ireland, Charleston, second vice-president; J. S. Turk, Wheeling, treasurer.

Delegates to A. M. A. Meeting

Henri P. Linsz, Wheeling; James R. Bloss, Huntington. Alternates, A. A. Shawkey, Charleston and Harry M. Hall, Wheeling.

Woman's Auxiliary

Mrs. R. V. Shanklin, Gary, president; Mrs. T. H. Harris, Parkersburg, vice-president; Mrs. W. C. Swann, Huntington, secretary; Mrs. W. D. Simmons, Slab Fork, treasurer.

Councillors

Mrs. C. G. Morgan, Moundsville, first district; Mrs. Ralph Maxwell, Morgantown, second district; Mrs. H. D. Price, Parkersburg, third district; Mrs. J. R. Bloss, Huntington, fourth district; Mrs. A. G. Rutherford, Welch, fifth district; Mrs. E. S. DePuy, Beckley, sixth district.

Delegates to Woman's Auxiliary of A. M. A.

Mrs. R. V. Shanklin, Gary; Mrs. B. S. Preston, Charleston. Alternates — Mrs. George Jeffers, Parkersburg; Mrs. W. B. Scherr, Morgantown.

*Presidents of the West Virginia State**Medical Association*

Date	Place of Meeting	Name
1867	Fairmont.....	W. J. Bates*
1867	Wheeling.....	John Frissell*
1868	Grafton.....	John Frissell*
1869	Clarksburg.....	H. W. Brock*
1870	Parkersburg.....	J. W. Ramsey*
1871	Martinsburg.....	W. J. Bland*
1872	Wheeling.....	J. M. Lazzell*
1873	Parkersburg.....	R. H. Cummins*
1874	Morgantown.....	M. S. Hall*
1875	Pt. Pleasant.....	M. Campbell*
1876	Wheeling.....	A. R. Barbee*
1877	Clarksburg.....	E. A. Hildreth, Sr.*
1878	Weston.....	J. W. McSherry*

1879	Martinsburg.....	W. H. Sharp*
1880	Parkersburg.....	W. M. Dent*
1881	Wheeling.....	W. F. Van Kirk*
1882	Wheeling.....	J. E. Reeves*
1883	Grafton.....	B. W. Allen*
1884	Clarksburg.....	A. Gerstell*
1885	Weston.....	Geo. Baird*
1886	Charleston.....	T. A. Harris*
1887	White Sulphur Spgs.....	S. L. Jepson*
1888	Huntington.....	L. S. Brock*
1889	White Sulphur Spgs.....	L. D. Wilson*
1890	Wheeling.....	S. H. Austin*
1891	Fairmont.....	S. H. Brownfield*
1892	Clarksburg.....	C. Shriver*
1893	Parkersburg.....	D. P. Morgan*
1894	Berkeley Springs.....	R. W. Hazlett*
1895	Davis.....	D. Mayer*
1896	Wheeling.....	J. A. Campbell*
1897	Charleston.....	N. D. Baker*
1898	Martinsburg.....	C. F. Ulrich*
1899	Weston.....	J. L. Dickey
1900	Morgantown.....	C. S. Hoffman*
1901	Grafton.....	A. H. Thayer
1902	Parkersburg.....	G. A. Aschman*
1903	Charleston.....	H. B. Stout
1904	Fairmont.....	T. L. Barber*
1905	Wheeling.....	T. M. Hood
1906	Webster Springs.....	S. S. Wade
1907	Huntington.....	W. W. Golden
1908	Clarksburg.....	F. Howell*
1909	Elkins.....	V. T. Churchman
1910	Parkersburg.....	T. W. Moore
1911	White Sulphur Spgs.....	C. A. Wingerter
1912	Webster Springs.....	C. O. Henry
1913	Charleston.....	F. L. Hupp
1914	Bluefield.....	R. E. Vening*
1915	Huntington.....	H. P. Linsz
1916	Wheeling.....	A. P. Butt
1917	Fairmont.....	J. E. Rader
1918	Martinsburg.....	Sam Holroyd
1919	Clarksburg.....	Robt. J. Reed
1920	Parkersburg.....	H. R. Johnson
1921	Charleston.....	J. H. Anderson
1922	Huntington.....	Geo. A. MacQueen*
1923	Beckley.....	John N. Simpson
1924	Wheeling.....	R. A. Ashworth
1925	Bluefield.....	Geo. D. Jeffers
1926	Morgantown.....	James R. Bloss
1927	White Sulphur Spgs.....	C. R. Ogden
1928	Fairmont.....	C. A. Ray

*Deceased.

.... PROGRAM

TUESDAY MORNING, MAY 22

GENERAL SESSION

10:00 Call to Order—

DR. C. A. RAY, President

10:05 Invocation

10:10 Address of Welcome—

DR. C. M. RAMAGE

President Marion County Medical Society

10:15 Response—

DR. J. R. SHULTZ

10:20 Science and Safety in the Prevention of Goiter—

DR. O. P. KIMBALL, Cleveland, O.

A paper stressing the two points of science and safety only, giving briefly the bio-chemistry of the thyroid with emphasis on the minute quantities of iodine needed to prevent goiter. The final study of 40,000 Michigan school children will be presented to determine the possibility of any harmful effects by the use of iodine.

Discussion: DR. DAVID LITTLEJOHN, Charleston
DR. R. H. PADEN, Parkersburg
DR. W. D. SIMMONS, Slab Fork

11:00 The Surgical Treatment of Tuberculosis—

DR. HOWARD LILIENTHAL, New York City

The role of surgery in the treatment of pulmonary phthisis. Selection of proper cases for operation. Results which may be expected. Lantern slide illustrations.

Discussion: DR. J. G. PETTIT, Hopemont
DR. R. B. BAILEY, Wheeling
DR. G. F. EVANS, Hopemont

II

TUESDAY AFTERNOON, MAY 22

General Session Continued

2:00 Rheumatic Fever—

DR. WILLIAM B. PORTER, Roanoke, Va.

(a) The nature of the pathology of rheumatic fever, with special reference to the proliferative lesions of the cardiovascular apparatus. (b) The clinical course of the disease compared with other sub-acute and chronic infectious diseases. (c) Suggestions as to the treatment of this disease.

Discussion: DR. O. B. BIERN, Huntington
DR. W. B. STEVENS, Eckman
DR. I. T. PETERS, Maybeury

3:00 The Diagnosis and Treatment of Surgical Lesions of the Stomach—

DR. DEAN LEWIS, Johns Hopkins, Baltimore, Md.

Discussion: DR. R. J. REED, Wheeling
DR. J. E. CANNADAY, Charleston
DR. D. M. AIKMAN, Wheeling

4:00 Cancer of the Rectum—

DR. FRED W. RANKIN, Mayo Clinic, Rochester, Minn.

Cancer of the rectum readily diagnosed by digital or endoscopic examination does not deserve the unfortunate prognosis with which it has so long been associated in the medical and lay minds. Eradication by radical surgical procedures gives a more satisfactory outlook than that of cancer in any other portion of the gastrointestinal tract. Earlier diagnosis, individualization of rectal cases into a separate group, adequate pre-operative management, graded operations performed under spinal anesthesia, and satisfactory postoperative care have lowered the mortality, increased the operability and improved the end-results in malignancy in this location.

Discussion: DR. R. H. WALKER, Charleston
DR. W. S. FULTON, Wheeling

II

TUESDAY EVENING, MAY 22

8:00 Address by President—

DR. C. A. RAY, Charleston

Oration on Surgery—

DR. ALBERT H. FREIBERG, Cincinnati, O.

Oration on Medicine—

DR. HARRY M. HALL, Wheeling

II

WEDNESDAY MORNING, MAY 23

Section on Internal Medicine

9 o'Clock

Lung Abscess with Treatment by Artificial Pneumothorax—

DR. BOYD F. BROWN, Huntington

A report of two cases treated by artificial pneumothorax. A brief general discussion of lung abscess with the value of artificial pneumothorax especially in acute cases.

Discussion: DR. ROBERT G. WRISTON, Beckley
DR. G. H. BARKSDALE, Charleston
DR. A. H. GRIGG, Beckley

My Experience with the Electrocardiograph—

DR. LUTHER C. DAVIS, Fairmont

This paper will endeavor to set forth what aid a man of average training with an average knowledge of cardiology can expect from the cardiograph.

Discussion: DR. C. W. WADDELL, Fairmont
DR. M. C. BORMAN, Montgomery

The Transfusion of Blood—

DR. C. L. WOODBRIDGE, Montgomery

Considering the principal indications for the performing of transfusions, the essential prerequisites, some points regarding the technique of transfusion by the direct method, and report on transfusions done in the Coal Valley Hospital since January 1, 1928.

Discussion: DR. W. M. SHEPPE, Wheeling
DR. G. R. MAXWELL, Morgantown
DR. L. O. ROSE, Parkersburg

An Antigen for Treatment of Tuberculosis; Its Preparation and Use—

DR. JOHN N. SIMPSON

Dean West Virginia University School of Medicine, Morgantown

The study of an antigen extracted from the tubercle bacilli and used curatively in all forms of latent and slowly progressive tuberculosis, in confirmation of work coming recently from the Pasteur Institute.

Discussion: DR. C. H. HALL, Elkins
DR. S. L. CHERRY, Clarksburg
DR. B. I. GOLDEN, Elkins

Acute Carditis—

DR. JOHN W. GILMORE, Wheeling

A clinical paper with special reference to etiology, prevention and diagnosis, especially prepared for doctors in general practice.

Discussion: DR. H. A. WALKUP, Mt. Hope
DR. M. I. MENDELOFF, Charleston
DR. R. V. SHANKLIN, Gary

II

WEDNESDAY MORNING, MAY 23

Surgical Section

9 o'Clock

A Clinical and Pathological Study of Goiter—

DR. ROBERT KING BUFORD, and DR. E. H. BOYER, Charleston

A pathological discussion of the three main clinical types of goiter; namely colloid, adenoma and exophthalmic, following the preoperative administration of Lugol's solution. Dr. Boyer will present slides showing the different histo-pathological changes in hyperthyroidism, before and after the administration of iodine. The importance of a uniform classification of goiter will be emphasized.

Discussion: DR. H. L. ROBERTSON, Charleston
DR. C. B. PRIDE, Morgantown
DR. W. R. GOFF, Parkersburg

Benign Prostatic Hypertrophy—

DR. R. D. GILL, Wheeling

A discussion of the etiology—indications for surgical intervention—some features influencing mortality and morbidity. A few comforting remarks for the average man past fifty.

Discussion: DR. RAY M. BOBBITT, Huntington

Chronic Pancreatitis and Its Relation to Certain Skin Diseases—

DR. W. A. QUIMBY, Wheeling

Chronic pancreatitis is believed to be an important etiological factor in some dry scaly skin conditions as eczema, psoriasis, ichthyosis, also pruritus. The X-ray and Barium meal aid in the diagnosis of chronic pancreatitis. (Slides.)

The Relation of Pelvic Disease to Ureteral Stricture—

DR. C. J. REYNOLDS, Bluefield

Discussion: DR. J. C. MATTHEWS, Huntington

Arthroplasty of the Knee—

DR. WILLIS C. CAMPBELL, Memphis, Tenn.

A discussion of the various indications and contraindications for arthroplasty; a description of the technique of the operation and of the after-treatment employed. Presentation of motion picture and slides demonstrating the operative and post operative results in a series of patients.

Discussion: DR. ARTHUR S. JONES, Huntington

DR. E. BENNETTE HENSON, Charleston

DR. J. O. RANKIN, Wheeling

II

WEDNESDAY MORNING, MAY 23

Eye, Ear, Nose and Throat Section

9 o'Clock

The Use of Iodized Oil in the Diagnosis and Prognosis of Chronic Maxillary Sinusitis—

DR. E. L. JONES, Wheeling

The thickness of the mucosa, the presence of tumors, and polypi in the antrum, can be very accurately determined through the use of radio-opaque substances. The therapeutic value of the oil is questionable.

Acute Surgical Mastoiditis—

DR. S. S. HALL, Buckhannon

The author makes a critical review of the literature of the last thirty years, and compares results of then and now, both from the standpoint of an operative mortality and residual pathology. It is the object of this paper to urge earlier surgical intervention. It is felt by the author that the time to operate is when the diagnosis is made; the same as in any other acute surgical condition.

Management of Intraocular Foreign Bodies—

DR. EDWARD STIEREN, Pittsburgh, Pa.

Intraocular foreign bodies naturally fall into two classes, those in the vitreous and those in or in front of the lens. A second classification can be made between magnetic and non-magnetic bodies. The procedure in managing and the results obtained in a series of about eight hundred cases will be discussed.

Mydriatics and Miotics in Eye Ground Examinations—

DR. W. S. SHEPHERD, Charleston

Special phases discussed will be the use of these drugs in treating presbyopic eyes.

Round Cell Sarcoma of Tonsil; Report of a Case—

DR. E. C. HARTMAN, Parkersburg

A paper constructed around the report of a case of Round Cell Sarcoma of the tonsil in a child nine years of age.

Parinaud's Conjunctivitis—

DR. R. A. TOMASSENE, Wheeling

This case of Parinaud's Conjunctivitis adds to those recorded in which there was no eosinophilia but where washings and curettings from the eye injected into a guinea pig gave positive tuberculous findings, as did likewise pus from the broken down pre-auricular gland. Best results in treatment were shown by local application of 5 per cent trachumin.

Recent Views Concerning the Nasal Accessory Sinuses—

DR. WILLIAM MITHOEFER, Cincinnati, O.

Careful study of each individual patient, before simple nasal operations are performed. The effect of systemic derangements on nasal accessory sinuses. Recent methods of diagnosis, treatment, and operative measures of the various paranasal sinuses.

II**WEDNESDAY AFTERNOON, MAY 23***General Session Continued***2:00 Lymphosarcoma and Hodgkin's Disease—**

DR. CURTIS BURNAM, Baltimore, Md.

Discussion: DR. G. H. BARKSDALE, Charleston
DR. W. H. WALLINGFORD, Bluefield
DR. C. J. REYNOLDS, Bluefield

2:45 The Treatment of Diabetes Mellitus—

DR. ELLIOTT P. JOSLIN, Boston, Mass.

The treatment of a diabetic today begins with diet and insulin, includes exercise and a program for life based on health examinations. Such intensified care nearly overcomes the handicaps of the disease, which fortunately decreases in severity the longer it lasts.

Discussion: DR. F. C. HODGES, Huntington
DR. R. C. HOOD, Clarksburg

3:30 Syphilis—

DR. MARTIN REHFUSS, Philadelphia, Pa.

4:15 Stomach and Intestines—

DR. CARROLL S. WRIGHT, Philadelphia, Pa.

II

WEDNESDAY EVENING, MAY 23
ANNUAL BANQUET

7 o'Clock P. M.—Fairmont Elks Club

DR. S. H. D. WISE, Parkersburg, *Toastmaster*

Address by SENATOR M. M. NEELY, Fairmont

Cover charge \$2.00 per plate. Tickets obtained at Registration Desk.

CONVENTION BALL

9 o'Clock—Fairmont Elks Club

II

THURSDAY MORNING, MAY 24

General Session Continued

10:00 The Treatment of Certain Surgical Infections—

DR. JAMES MITCHELL, Washington, D. C.

Discussion: DR. A. G. RUTHERFORD, Welch

10:45 The Symptoms and Diagnosis of Congenital Hypertrophic Pyloric Stenosis—

DR. J. T. THORNTON, Wheeling

Discussion: DR. B. S. PARK, Parkersburg

DR. GEORGE M. LYON, Huntington

DR. CLAUDE L. HOLLAND, Fairmont

11:30 The Cautery Punch—

DR. JOHN R. CAULK, St. Louis, Mo.

Remarks on the etiology of prostatic hypertrophy, showing particularly the inflammatory nature of the majority of growths—suggesting great care in diagnostic study, repeated examination, rectal and cystoscopic, other drainage. In this matter many prostates are made applicable to minor surgery. Remarks on the cautery punch giving details of technique and paying attention to post operative care.

Discussion: DR. J. R. CALDWELL, Wheeling

DR. W. P. SAMMONS, Wheeling

DR. F. E. ROBERTS, Wheeling

WOMAN'S AUXILIARY

The following interesting report has been sent in of the recent organization of the Harrison County Auxiliary by Mrs. B. S. Brake, secretary:

At three o'clock on the afternoon of Thursday, February 16, in response to notices sent out, fourteen ladies, wives of Harrison county physicians, assembled at the Dolly Madison tea rooms for the purpose of considering the organization of a Harrison county branch of the Woman's Auxiliary of the West Virginia State Medical Association. Mrs. B. S. Preston of Charleston, state president of the Auxiliary, was present and was introduced as the presiding officer of this meeting by Mrs. D. P. Cruikshank of Lumberport.

Mrs. Preston briefly outlined the purposes of the Auxiliary and stressed the importance of having a branch in Harrison county. Thereupon Mrs. Preston asked for expression of opinions by the ladies present. Each one sanctioned the proposal and upon motion of Mrs. J. E. Corbin, a nominating committee was appointed by the chair. Mrs. Corbin, Mrs. R. C. Hood and Mrs. B. S. Brake were named upon this committee and adjournment was taken until 7:30 o'clock p. m.

At 6:30 o'clock the ladies had dinner with their husbands at the Catholic Daughters club rooms and Dr. S. L. Cherry of Clarksburg read a most interesting paper on "Pioneers of Medicine."

At 7:30 o'clock the ladies assembled at the club rooms of the Catholic Daughters and Mrs. Corbin of the nominating committee reported the following names for offices of the local branch of the Auxiliary: President, Mrs. R. C. Hood; vice president, Mrs. D. P. Cruikshank; treasurer, Mrs. R. V. Lynch; secretary, Mrs. B. S. Brake. Mrs. R. L. Osborn made a motion that the ladies be declared elected to the offices for which the nominating committee proposed and this motion carried unanimously. It was decided to hold monthly meetings on the first Thursdays of each month at 8:30 o'clock p. m.

The following ladies were present during the meeting: Mrs. B. S. Preston, Mrs. R. C. Hood, Mrs. J. E. Corbin, Mrs. R. L. Osborn, Mrs. J. T. Brennan, Mrs. D. P. Cruikshank, Mrs. H. A. Whistler, Mrs. E. Tucker, Mrs. S. L. Cherry, Mrs. J. E. Wilson, Mrs. B. S. Brake, Mrs. H. E. Sloan, Mrs. J. F. Williams, Mrs. O. W. Ladwig and Mrs. H. H. Esker.

The State Meeting

The time for the state meeting is fast approaching and it is important for each Auxiliary to elect delegates to this convention. Last year the constitution was amended to read "one delegate for every ten members," and each county society should choose their delegates accordingly. Under Mrs. Preston's direction, an excellent program is being arranged and a good attendance of doctors' wives is expected.

Kanawha Auxiliary

The Woman's Auxiliary of the Kanawha Medical Society met on the third Tuesday evening of March at the home of Mrs. W. A. Thornhill. In the absence of the president and vice president, the meeting was presided over by Mrs. J. R. Shultz. After a brief business meeting, Dr. Charles O'Grady of Charleston read an admirable paper on the life and works of Pasteur. About 25 members of the Auxiliary were present for this meeting.

New Organizations

The organization of a new Auxiliary at Richwood in connection with the Central West Virginia Medical Society will probably take place this month. Mrs. B. S. Preston expects to attend the meeting of the Central West Virginia society at Richwood to assist in the organization.

There is some talk of a new Auxiliary being formed in Lewis county. More than 12 doctors' wives attended the Lewis County Medical Society meeting at Weston on April 10 to hear Dr. C. A. Ray, president of the West Virginia State Medical Association.

The West Virginia Medical Journal

Directed and Edited by the Committee on Publication

[The Committee on Publication is not responsible for the authenticity of opinion or statements made by authors or in communications submitted to this Journal for publication. The author or communicant shall be held entirely responsible]

JAMES R. BLOSS, *Editor-in-Chief* - - - - - Huntington

ASSOCIATE EDITORS:

WALTER E. VEST
Huntington

HARRY M. HALL
Wheeling

J. HOWARD ANDERSON
Martown

C. A. RAY
Charleston

MR. JOE W. SAVAGE, *Secretary-Business Manager*, Charleston

Entered as Second Class Matter, January 1, 1926, at the Postoffice at Charleston, West Virginia

Volume XXIV

JUNE 1928

Number 6

PRESIDENT'S ADDRESS *

C. A. RAY, M.D., F.A.C.P.

*President of the West Virginia State Medical Association
Charleston*

THERE are epochs in the lives of men, the exhilarating enthusiasm of which, if taken at its zenith, is likely to create a degree of egotism in one incompatible with that public sentiment upon which he must depend for achievement, and the reaction will be a greater shock to him than the fall of an empire to a nation. More than forty years ago when I was notified that I had successfully passed an examination which entitled me to the degree of Doctor of Medicine, my first thought was that a new era in medicine had been inaugurated. It would no longer be necessary for people to die if my services could be had, and in a few short months my name and fame would be spread throughout all the land.

My experience is a familiar chapter in the life of every doctor. In less than a few short months I found myself groping in the dark, the Grim Reaper on one side, and anxious friends and my conscience on the other. Soon was I brought to realize

that the pursuit of medicine was a life of labor and sacrifice, with little consideration for the future, and that the state of mind in which I had started was purely an hallucination. So we have plodded along through these two score years, giving our best to those who have trusted their all to us, willingly sharing and accepting the knowledge of experience with our fellows, and contributing in our feeble manner to the advancement of medical science and the welfare of our association as occasion arose. Whether deserving or not, my reward came when, at old and historical White Sulphur Springs last June, you conferred upon me the honor of the presidency of this Association, and I take this occasion again to thank you from the bottom of my heart.

It is a great honor at any time to be selected as one from nearly two thousand, but it is a signal honor to have the privilege of presiding over this Association on this the sixty-first anniversary of its organization, in this fair city of Fairmont, which gave it birth, and re-dedicate it to the ideals

* Read before the West Virginia State Medical Association at Fairmont, on May 22, 1928.

of its founders and its first president, Dr. W. J. Bates. I know the spirits of those old patriarchs are now hovering over this assembly, and this is a fitting moment for us to pay due reverence to their memory.

Ideals

I can not conceive of a greater purpose in the organization of this Association by its founders than of setting a standard of excellence for the whole profession in West Virginia. Living as they did at a time when medicine as a science was about to break through the veil of superstition, fanaticism, hoodooism and quackery, they left a priceless legacy for those of us who seek for knowledge rather than chase the rainbow for its pot of gold. The altruistic spirit of these men is manifest from the records in the archives of our Association. Few of them accumulated riches, but many of them made reputations of which any of us may well feel proud.

Another great purpose was to bring together in close relationship every reputable physician in the state, whereby each should profit by the experience of others, their intercourse should be that of true fellowship, sharing each other's joys and sorrows, and lending a helping hand to a brother who might otherwise fall by the wayside, or depart from the dignified principles of the Hippocratic oath.

experience of the others, their intercourse should be that of true fellowship, sharing each other's joys and sorrows, and lending a helping hand to a brother who might otherwise fall by the wayside, or depart from the dignified principles of the Hippocratic oath.

If this was their vision, have we done all in our power to convert this dream into a reality? I am afraid we must answer "no."

Organization

This brings us to the question of organization. It would be a waste of time for me to enter into a discussion of the efficiency of an industry operating under complete organization as compared with the inefficiency of another only partially organized. There are more than five hundred physicians in West Virginia who are not affiliated with the Association, and, I am

sorry to say, among these are public officials, entrusted with the important responsibility of public health and of medical education. I have no comment to make other than to state the fact. I dare say that nine-tenths of these doctors are eligible for membership, and could be induced to affiliate themselves with their local societies if proper inducements were offered by the right person.

I therefore recommend that the House of Delegates formulate some plan whereby each component society shall have a committee on organization and membership, whose duties shall be to keep in touch with those who are inclined to become delinquent, and to secure new members.

Package Library

I desire to recommend that some provision be made for the establishment of a package library in our state headquarters. It is unnecessary to discuss the merits of this idea. The expense would be insignificant. In fact, I feel sure it would be self-supporting with a charge of 25 to 50 cents for each package sent out. I am optimistic enough to think that it will not be a great while until the Association will have its own state medical library, and a few hundred of these packages, together with publications already in our possession, will be a good beginning. In this connection, let me implore you not to lose interest in the proposed state building program, which is now in the hands of, and being worked out by, an efficient committee.

Conservation of the Heart

In the early years of my practice, which was a little more than two decades after the Civil war, I had occasion to examine many veterans who were making application for pensions. Most of these men were between forty-five and fifty years of age. I was impressed by the great number who were suffering from some form of heart disease. Many of them being my private patients, I had an opportunity to obtain a fairly complete personal history and physical examination.

It is unfortunate for me at this time that those histories were not written, filed and preserved, but, as was the custom of that

day, a history was sufficient only unto the party concerned. However, a large percent were, or claimed to have been, apparently perfectly healthy for fifteen or twenty years after being discharged. They would invariably stress incidents of sickness and exposure as a prime causative factor in the production of their disability. It was my lot to see many of these old men pass on, and statistics show that of those who survived the conflict thirty years or more, ninety per cent died of some form of heart disease. We were very much inclined to believe that lack of proper food, exposure and nervous strain were the direct causes of their heart disease and so recorded that opinion. In the light of present day facts that picture has changed. Unquestionably many of these men were potential if not actual cardiacs during their term of military service. Many of the same causes apply today. Especially are we Americans noted for our rapid pace and high-tension living. If it is not war we have the automobile, flying machine and submarine, our fondness for and indulgence in good things to eat, and a tendency to drink to excess anything deriving its name from the heavenly bodies to shoe polish.

The young, middle aged and old continue to die of heart disease in increasing numbers until the mortality rate of this malady is higher than any other disease. During the past three hundred years the average span of life has increased from thirty to nearly sixty years, but after the age of fifty there has been little or no change in the average. The increase in the general average has been accomplished by better care of infants; prevention of infectious diseases of childhood by prophylaxis and their treatment with specific remedies; world-wide agitation for the control of and federal government regulations intended to cure and stamp out syphilis, cancer and tuberculosis; clinics all over the world by the expenditure of millions; state institutions and associations for the education and treatment of those who fall victims of the white plague.

—What has been done for the sufferer with heart disease? Practically nothing except through philanthropists, individuals who

have seen their dear ones in childhood, early manhood and womanhood and old age, die with this never-failing blade of the Grim Reaper, and the few truly altruistic physicians who devote much of their time to this subject. Statistics are dry reading, but I must here mention a few. In 1926 there were in the United States 107,000 deaths from pneumonia, 103,000 from nephritis, cancer and other malignant tumors, 91,000 from all forms of tuberculosis, and 209,000 from heart disease. Figures compiled by Dr. M. L. Townsend, health officer of North Carolina, show that for every death from heart disease, there are seventeen other persons suffering from this cause in a demonstrable form, making over three and a half million persons in the United States today who have heart disease.

Seriously considered, this condition is appalling. Tuberculosis, selecting by preference its victims in the bloom of youth, contagious and infectious, coming on rather suddenly, if diagnosed and properly treated, there is a fair chance for recovery, otherwise, in a few short months, it is all over. Cancer, attacking the middle aged and old, but amenable to surgery, X-ray and radium. Heart disease, attacking all ages, non-contagious, insidious in its onset, creeping in like a thief in the night. and once in the grip of its octopus-like tentacles, there is absolutely no hope. Referring again to Townsend's figures, if for every death there are seventeen other cases the average life expectancy would be seventeen years. The hope that something may be done to make our cardiac victims more comfortable, lessen their number, and prolong this seventeen years of expectancy has prompted me to devote the time of this occasion to the subject of conservation of the heart.

It is a sad commentary on the profession that with so many general practitioners in the past the extent of their knowledge about heart disease has been "a leak and digitalis." The first thing then will be for every physician to train himself or be trained to recognize every abnormal heart condition and intelligently advise the patient what is best for him. There have been in recent years many instruments of precision in-

vented to aid us in the diagnosis of heart diseases, but unfortunately they are useful only in a small percentage of cases, for 95 per cent of pathological hearts can be diagnosed without their use, and they do not add much to the knowledge of our treatment. They do, however, in many instances, show us what we should not do.

Prevention—the early and complete removal of all foci of infection, carious teeth, middle ear disease, infections of gall bladder and urinary tracts, early and persistent treatment of syphilis and chorea, and most important of all, the breaking of the chain of tonsillitis, rheumatism, heart disease. I believe that after the first attack of acute tonsillitis, the tonsils are more or less infected, one of the most pronounced sources of acute rheumatism, and should be removed. Every person who suffers from an acute infectious disease is a potential heart victim and, if earnestly considered as such, much can be accomplished in the prevention of subsequent heart sequelae.

It is not my purpose to discuss the therapeutics of this disease, but I cannot refrain from mentioning here in reference to tonsillitis and sore throats the excellent results of keeping your patient saturated with salicylates during and for some time after an attack.

Every young person aspiring to participate in athletics should first have his heart examined. A young high school lad recently consulted me for attacks of fainting, and I learned from him that he was a member of his school's track team. He had a well-marked chorea, pulse rate of 120, and systolic blood pressure less than one hundred. He did not have an organic valvular lesion, but he did have the more serious condition of structural changes in the heart muscle. The most important phase of this subject from the standpoint of prognosis and therapeutics is the heart muscle. If you hope to handle cardiac patients successfully let this be your first consideration in every examination.

Rest—The importance of rest after acute infections have always been under-estimated. We see people up and about their usual business or occupation on the second day

after an acute tonsillitis. This is a mistake. Children who have had measles, scarlet fever, or diphtheria are seen in school two weeks after being pronounced well, when they should be in bed at complete rest. We have seen persons who have had actual endocarditis, following infections, allowed to be up and about with a rapid pulse and distinct murmur, a very grave mistake.

We cannot be too emphatic in our insistence on prolonged rest in potential heart cases. I hope I may be pardoned by the doctors present if I digress here for a moment to discuss a phase of the subject which is primer to you but may interest the laymen present, of whom I see a goodly number, and I take this opportunity to express the appreciation of the Association for their interest and presence on this occasion.

Let us consider first the amount of work the normal heart has to perform. A hollow, muscular organ slightly larger than a closed fist, divided into four compartments, each of which holds about two fluid ounces. With each contraction or beat it forces out into the body two ounces of blood. Seventy times a minute, 140 ounces, $8\frac{3}{4}$ pints, sixty minutes an hour, 525 pints, $65\frac{1}{2}$ gallons: twenty-four hours a day, 1572 gallons, approximately thirty barrels. Think, my friends, the enormous bulk of blood the heart must handle under normal conditions. Then think what happens if the heart for any reason be affected by any acute disease with high temperature, and pulse rate increased to 120 or even 140 per minute. If there is an organic lesion or "leak," just in proportion to the extent of that lesion will the burden be increased under otherwise normal conditions. To provide for this over-work nature increases the muscular power of the heart by what we call hypertrophy up to a certain point where it begins to fail and we then have the condition of decompensation. This inevitable time may be put off or prolonged under the care and advice of a well trained physician, who, having estimated your vital capacity, will help you to regulate your habits, diet, exercise and, most important of all, your periods of rest.

To repeat, the time to prevent heart dis-

ease is in early life. Having removed all foci of infections, immunized by prophylactic measures and treated acute infectious diseases with known specific remedies, rheumatism and chorea with most successful empirical medication, proper nutrition and period of rest, we are confronted with a certain percentage of actual cardiacs, notwithstanding the proficiency with which we have pursued this course. We refer more particularly to children in the statement that many damaged hearts can be entirely cured under efficient and prolonged treatment and observation, but we must not be too sure of recovery for several months after the first assault. When the pathology has reached the point where complete recovery is impossible the time has arrived when they should be under the observation and subject to the supervision of a physician capable of outlining and estimating the activities of their future life. It is of the greatest importance that this physician be one who can determine their vital capacity and exercise tolerance.

Dyspnea is a good index of the reserve power of the heart, and when this symptom is present it is due either to failure of the heart to provide an adequate flow of blood or failure of the lungs to properly aerate the blood. If the vital capacity is ninety per cent of normal he will have no more dyspnea on moderate exertion, but can lead a normal life. If between 50 and 70 per cent his activities will be extremely limited, and if below 50 per cent the patient will be practically bedridden. Next to vital capacity is the exercise tolerance test, or the amount of exercise the patient can take before the appearance of the subjective symptoms, dyspnea, palpitation, fatigue, pre-cordial distress, expression and color of the face, etc.

Space and time, even if it were expedient, would not permit, before this group of physicians, to go into the details of the methods for the determination of the fact we want to know: How much work can this particular heart do? What is its limitation?

Our problem is education of the parents in the care of the child whose physical and

mental activities are necessarily limited. Without their intelligent cooperation but little can be accomplished. The youngster will and should play. How much, the parents should know. It may not be well for him to go on long hikes like other boys and girls, nor engage in more strenuous sports and athletics, but there are other outdoor amusements which he can enjoy. They should be encouraged to spend much of their time in the open air. The real problem is the education and mental development of the child with cardiac disease. The physician must have full cooperation of the parent and school authorities. They can not be crowded in school work. Their hours must be shorter and tasks lighter than those of the healthy and strong. Mental exhaustion is detrimental to their physical condition. Many of the large cities have organized special schools for this purpose, where the children are not only grouped, but are classified and under the supervision of an especially trained physician. An education increases their earning capacity and fits them for a large variety of occupations which demand only moderate physical exercise, and will enable them to live a life full of years and usefulness. Those of you sufficiently interested may secure these schemes of grouping and classification for schools, methods of testing exercise tolerance, amusements, etc., by writing the Pennsylvania Department of Health, the Board of Education, New York City, or the Philadelphia Heart Association.

After school days comes the time of vocational training. If taken early and trained in some occupation within bounds of their physical endurance, many of these patients will become self-supporting and useful citizens, happy and contented, who would otherwise become invalids for life. The same principle should govern your advice to the adult or more advanced cardiac who may come under your care. You would not send a man from the ward of your hospital who had regained his compensation back to the ditch from whence he came, only to make a repeater of him, shorten his existence and convert him into a public charge. Such a person should be provided with em-

ployment within the limit of his endurance and encouraged to take a more optimistic view of life. To my mind there is nothing more pathetic than the picture of absolute dejection on the face of a man or woman who has been told that he has an organic heart disease and there is nothing more in life for him but to fold his hands in idleness and anticipate the end, which may be many years in the future; especially is this true when compared with the optimistic and hopeful anticipation of a tuberculous patient whose life expectancy is often only a few months at the best. This thought was prompted by an incident which occurred only a few days ago. A young man came into my office for my confirmation of a diagnosis and prognosis of his condition made by another physician a few days previous. On examination, I found him to have a mitral insufficiency with perfect compensation, the least dangerous of all heart lesions, and for all I could tell, it may have been present from infancy.

We bring you this message with the hope of stimulating an interest in this subject among all the physicians and health authorities of the state. Little or nothing is being done by either in establishing local heart clinics, or forming a state organization, mostly for lack of interest on our part, and appropriations for the health department. This is a golden opportunity, and the time is ripe, for some young men or group of men to establish a heart clinic in each of our cities, and for all of us to use our influence in securing appropriations with which the state health department may earnestly engage in this work. In the year 1926 there were 2,000 recorded deaths from heart disease in West Virginia, and, according to estimated statistics, we have approximately 34,000 people who have some form of demonstrable heart disease. If present conditions continue, one in every five of our population now living at the age of ten years will ultimately succumb to organic heart disease. The United States Public Health Service is doing much work on this subject, from which you may secure desired information about the organization of associations and the establishment of clinics.

Among the states which have organized associations for this purpose are New York, Pennsylvania, Illinois and Ohio. Many large cities have their local organizations in connection with their school systems, and great good is being accomplished.

It has occurred to me that the Professional Relations Committee might organize for the coming summer a campaign in the nature of a "Heart Week." A clinic could be held in every city in the state, at which free examinations would be made by a corps of competent men, and if a person were found to have any form of heart disease, he would be advised to consult his family physician. Every civic organization in the state could be supplied with a speaker on this subject during this week, and I feel sure much good would be accomplished. I hope the House of Delegates will give this suggestion their consideration.

I want it distinctly understood that I am opposed to free clinics for people who are able to pay for the services of a doctor, and I am making this suggestion with the idea of creating a greater interest in periodic health examinations. This is an age of health education and disease prevention, and the people who need it are less interested than those who are its most enthusiastic advocates. Conserving the heart depends greatly on our ability to prevent its involvement by other pathological processes and its early recognition. If we could examine and refer five thousand persons with heart disease during this clinic or heart propaganda week, many of the other 29,000 cardiacs in West Virginia could be brought to realize the seriousness of their condition and life expectancy, and I think do more toward advertising periodic health examinations than newspaper, poster and letter writing dissemination.

No argument is needed to establish the fact that prevention and relief of heart diseases is the vital medical, sociologic and economic problem of the civilized world. Their high mortality rate exceeding that of any other disease, their preventability to a great degree, and curability in many cases, furnish sufficient evidence of the urgent necessity for instituting proper

methods looking toward their limitation and control.

West Virginia physicians have always been found in the advance guard of any movement for the relief of suffering humanity, and let us not falter now. If the medical profession hopes to retain the hon-

ors justly accorded it for having increased the span of life thirty years, the members of this Association must wake up to the fact that the treatment and control of cancer and tuberculosis are secondary in importance to the prevention and relief of heart disease.

THE TREATMENT OF DIABETES*

By JACOB S. HACKNEY, M. D.
Uniontown, Pa.

I DEEM it a great honor to have been invited to address the profession of this county, but I am afraid I shall be unable to come up to the high standard that has been set by others who have addressed you on other occasions. I shall, however, endeavor to give you some idea of the methods I have pursued in the treatment of the many cases which have been referred to me during the past five or six years. There will be nothing new presented and that which will be presented can be gathered from almost any text book on the subject.

I will not attempt to go into the pathology of this disease but confine my remarks almost entirely to the practical side of the question as relating to the treatment of the case.

Often my patients come to me and ask the question: "Doctor, what are the first symptoms of diabetes?" I am forced to answer them that I do not know, that the disease comes on so gradually and insidiously that there are no symptoms that can be pointed to as a definite indication that the patient has incipient diabetes, but later on as the disease develops, we have the conditions arising of great thirst, polyuria, dryness of the mouth, and skin, loss of weight, lassitude, great hunger (the more the patients eat the more they want), and in most cases the excruciating pruritis; in men an intense itching and burning of the foreskin and head of the penis and in women the same of the vulva.

In the treatment of this disease unless we

have the entire confidence and cooperation of the patient in the carrying out of the directions given, it is almost useless for us as physicians to waste our time on them or they waste their time or money with us.

If I were asked the question as to the most important thing in the treatment of this disease I would without question answer that the education of the patient is the first requisite for the welfare of the patient.

The patient must know the value of foods and how to substitute one for the other and the amount to be eaten when such substitution is made, the testing of the urine and being able to interpret the findings when such tests are made. He also should know the nature of the disease and be able to guard against all those conditions that are liable to follow.

My practice is to give my patients a series of lectures, usually three or four. I usually start by giving them a general idea as to the nature of the disease with which they are afflicted, the early and late symptoms, the progress of an untreated case, the dangers which are apt to follow in an untreated case, and then tell them that this is not a disease which can be treated by drugs, that there is no drug known to the medical profession that will do a diabetic very much good; that their salvation for future health and happiness lies entirely as to how closely they stick to their diet. Diet must be their sheet anchor—and it does not matter so much as to what they eat as it does as to how much. I then instruct them that there

* Read before the Monongalia County Medical Society, Morgantown, W. Va., July 5, 1927.

are only three kinds of food that mankind eats. This is a revelation to them, but when the explanation is given that no matter in what form it is in, the final analysis converts it into carbohydrate, proteins and fats, that the carbohydrates consists of all kinds of starch and sugars, the proteins consist of gelatin, albumen (white of egg), fish and oysters, etc., and the fats are the oils, butter, etc.

The next step is to instruct them as to the kind of sugar which the doctor finds in a specimen of urine, that this is not the ordinary sugar but is known as glucose. Then that 100 per cent of the starch and sugar which is taken into the stomach is at once, by the action of the juices of the stomach, converted into glucose, that 60 per cent of the proteins are also changed into glucose and that 10 per cent of the fat is also changed. In other words by giving equal portions of each of the three kinds of food 170 per cent of it is converted into glucose.

The next step is to explain the nature and location of the pancreas and the many thousands of small glands within that organ, called the Islands of Langerhans. That these glands are constantly manufacturing a substance which is taken up by the blood stream and the purpose of this substance is to burn up and utilize the carbohydrates which have been taken into the body for its nourishment. That if these glands have become diseased, then the manufacture of this substance will be decreased just so much as the disease has destroyed the glands. That these glands have become broken down and are not likely to be able to regain their former condition and the reason of their breaking down was that they have had, in former times, too much work to do in the way of taking care of the large amount of food which has been eaten. That henceforth the patient must live within the amount of food which these glands can take care of and assimilate.

The whole question of the physician, generally speaking, will be to test out the ability of each individual case as to the amount of glucose the patient can assimilate in each twenty-four hours, and at the

same time to allow him enough protein and fat to enable him to live comfortably.

By means of charts and diet tables (copies of which are given to the patient to take home and study) they are then instructed as to the C P and F content of nearly all the commoner articles of diet and how to make substitutions for the various kinds of foods.

The food must be weighed each day and the exact amount allowed must be taken but no more, that the allowance may be taken in three meals or it may be eaten oftener but under no circumstances is it to be divided into less than three parts.

My plan of treatment is to begin on a very light diet and keep them on that until they become sugar free, both as to urine and blood, then gradually increase the C, P and F content of the diet until a slight trace of sugar again appears in the urine, then reduce the diet two or three points below that and keep them there for a long time or so long as no sugar appears in the urine, the longer the better, thereby giving the Islands of Langerhans a chance to rest and recuperate.

It is the general opinion that once a diabetic, always a diabetic, but according to Banting this is not always the case. He claims in some cases that within the pancreas apparently either new glands are formed or the old ones are regenerated. I am inclined to agree with this as I have seen several cases who at the beginning of treatment presented serious and grave symptoms, showing that they were far advanced diabetics, yet by strict observance of the rules laid down, and persevering in the diet regulations over a long period of time they finally became so that they could eat anything they wanted without showing any urinary or blood sugar and their general health apparently as good as ever.

In my opinion the best results can only be obtained by having the patient in a well regulated hospital, where the patient, while undergoing the testing period can at the same time be learning how, in the future, he may be able to care for himself. The stay in the hospital usually takes about three weeks. Upon entrance they are

allowed the regular house diet for the first twenty-four hours, or until a full day's sample of urine saved and a blood sugar test be made. After these tests are made the results give an idea as to the severity of the case under treatment.

A low diet is now selected and the patient kept on it until he becomes sugar free. If after four or five days the urine becomes sugar free and the blood sugar remains nearly stationary, then the patient is given several doses of insulin in order to render the blood sugar content normal. Another reason for giving the insulin is to render the stay in the hospital shorter. The same results would be obtained, usually, by the persistent use of the low diet.

During the patient's stay in the hospital, a daily test of each twenty-four hour sample of urine is made, both qualitative and quantitative. The results of the tests are charted on the record. The patient, if able to be about, is weighed each morning before eating and the result charted. When the weather is fit a daily walk is insisted upon. It is also insisted that while in the hospital the patient eat the whole of the amount of food which is prescribed for him, otherwise the daily tests will not be accurate.

Insulin—You all know what insulin is and in a general way how it is made. As was said before, the Islands of Langerhans are constantly manufacturing a substance which is taken up directly by the blood stream. This substance manufactured in our bodies is nothing more or less than insulin. From the pancreas of the lower animals the commercial product is obtained. It is because of a lack of sufficient insulin in our bodies that we have diabetes. By the presence of the insulin the carbohydrate content of the food we eat is digested and assimilated. If there should be an insufficient amount of insulin manufactured and an excess of carbohydrate, the excess will be stored up in the system, with a portion being thrown off in the urine.

This excess, if not eliminated, will finally produce toxic symptoms with coma and death. It is in these conditions that we use the manufactured insulin. Remember that insulin is not a cure, it is only a bridge by

which the patient may be able to eat more than he otherwise would. In my experience only about one in twenty of the diabetics need the constant use of insulin.

If the patient can be given enough of a balanced ration of the C, P and F that his general health remains reasonably good and is able to take a reasonable amount of physical exercise, and no sugar appears in the urine and the blood sugar does not rise above 130, then that patient does not need insulin. On the other hand if the Islands of Langerhans have become so diseased that but a small amount of insulin is being secreted and the patient can take but very little food without showing sugar, then that patient will need insulin for an indefinite time, probably as long as he lives.

A moment since I spoke of the insulin being manufactured in our bodies as being taken up by the blood stream and not thrown into the intestinal tract. So in administering the manufactured insulin we must imitate Nature and use a hypodermic needle and inject it into the circulation.

So far there has been found no substitute for insulin made by the process discovered by Banting. Preparations recommended by various persons to be taken by the mouth have been a delusion and snare. The medical profession, and especially those patients who are compelled to use the needle, will hail with joy the day when the needle can be laid aside. Insulin is a double-edged sword. Great benefit can be had from its proper use, and great harm or even death can result from its improper use. In my opinion a physician is almost, if not entirely criminal, for using this remedy without an accurate blood sugar test prior to its use, and frequent tests made during its continuance. It is a remedy which acts rapidly and if an overdose is given the condition known as hypoglycemia follows, which condition is as much, if not more dangerous than the hyperglycemia. As we all know there is a certain amount of glucose which is required in the normal individual. This has been estimated to be 90 to 120 mg. to each 100 cc. of blood. If this should be increased to any great extent we have the condition known as glycosuria or hypergly-

cemia, with coma and death following if not relieved promptly. These are the cases where insulin works wonders by apparently snatching the patient from the jaws of death.

The dose of insulin to be administered in the ordinary case is regulated by the degree of the blood sugar. My practice is as soon as possible to obtain a specimen of blood and a blood sugar test made, and then 50, 75 or even 100 units of insulin is given intravenously. Then in about one and a half hours another test is made and the result of this test will guide me as to the continuance or non-continuance of the insulin.

If now the patient shows that the blood sugar is rapidly falling below the normal, too much insulin has been given and an orange, cracker or even a chocolate drop is given to supply the necessary glucose. If the blood sugar is very low an intravenous injection of from 50 to 100 grams of levulose is given. The above routine applies only to those who are in or rapidly approaching the state of coma.

In those cases which cannot take a sufficient amount of food to sustain them properly, without showing urinary and blood sugar, my practice is to place them on a sufficient C, P and F diet which would be proper for them, taking into consideration their weight, age and occupation, then test them as to the amount of insulin which will utilize the extra amount of food necessary, in the meantime instructing the patient as to the proper use of the syringe and the time to administer the insulin.

In doing this I insist that the patient take the allotted dose 20 to 25 minutes before each meal, giving just enough insulin to take care of and digest that one meal, not forgetting that at least once a month that the blood sugar be tested. The amount of insulin to be used in these cases is usually about one unit of insuline to each one to two grams of glucose taken that which may be taken without producing a glycosuria. Again let me caution against the indiscriminate use of this remedy. Joslin says: "Insulin is a remedy for the wise and not the foolish, be they patients or doctors.

Everyone knows it requires brains to live long with diabetes, but to use insulin it requires more brains."

There is a further condition arising often in those afflicted with this disease and which deserves a passing notice. I refer to the hardening of the arterioles and often of the larger vessels.

An X-ray picture should be taken of all diabetics in order to obtain an exact knowledge of the blood vessels and thereby be able to warn and instruct them as to future complications. Most diabetics complain of cold feet. This is due to a lack of proper circulation.

Surgery in the Diabetic—Any wound occurring in the diabetic is a dangerous wound and should have early attention from a competent surgeon. Other than traumatic injuries the most usual conditions with which we have to deal are carbuncles and gangrene. In carbuncles the best results are obtained from early and complete laying open of the affected area, carrying the incision well beyond the affected area, making crucial incisions and dissecting each quadrant of the skin from the underlying parts and then packing with sterile gauze and binding with wet sterile dressings of either boric acid or mag. sulph. The less handling of the affected parts the better. Now as to gangrene. This may occur in any part of the body, but is more frequent on the feet and next on the hands. (A carbuncle is only another form of gangrene.) Joslin says that if we would be as careful of our feet as we are of our faces, gangrene would be almost unknown. Owing to the enfeebled circulation in these parts when infection takes place, nature is unable to throw the infection off and it rapidly spreads.

Patients can hardly realize the gravity of the situation, when often, after consulting their physician for a small sore on their feet, probably no larger than a split pea, the physician will tell them that an amputation is indicated at once and that above the knee. We no longer wait for the line of demarcation in these cases, but as soon as it is decided that an amputation is necessary the operation is done promptly.

It is here that the X-ray plays an impor-

tant part. If the blood vessels of the leg show any sclerotic condition the amputation should be well above the knee, even should it be near or at the hip joint. Should the blood show a dark color and sluggish in its flow, while doing the operation quit right them and go higher up. Otherwise the flaps then and go higher up. Otherwise the flaps will be necessary.

Summary of the surgical aspects of the disease: In people of middle age and under, gangrene seldom occurs. The sclerotic condition of the blood vessels is the underlying cause of the gangrene and not the diabetes *per se*.

Joslin says: "If one needs be convinced of the uselessness of attempting to save most gangrenous legs, the specimens removed should be studied. This will show how hopeless it is to expect the arteries to regain their function. Regret is felt not for the removal of the leg at the time, but rather that the leg had not been removed sooner."

Root says: "Wounds do not heal well with a high blood sugar."

In the choice of an anesthetic use gas-oxygen or a local anesthetic. Chloroform and ether will produce a glycosuria and are dangerous. Do not use a tourniquet or do

any trauma to the surrounding parts.

In elderly persons immediate and high amputation is the rule. Old persons do not stand bed treatment well. High amputation never necessitates a reamputation. Do not take into consideration the fitting of an artificial limb.

If the gangrene extends into the foot either primarily or following the amputation of a toe, a thigh amputation should be done at once.

Again Joslin says: "The factors which favor success in surgery of the diabetic are an early diagnosis of the disease and an early decision to operate. Death from gangrene of the diabetic today is the result of procrastination on the part of the physician and patient."

Now, gentlemen, I am afraid I have exceeded my allotted time and I must bring my talk to a close. Much more there is to this subject but lack of time forbids going into it.

It has been my endeavor to tell something about this dread disease and the methods followed in my treatment. There is nothing new which has been brought before you this evening; nothing which cannot be found in any text book on the subject.

THE PATHOLOGY OF ENDEMIC GOITER AND THE IODINE QUESTION*

By H. S. KEISTER, M. D.
Fairmont, W. Va.

THE most important need at the present time in the problem of endemic goiter is to find some guide to the use of iodine in its treatment. Recent work on the pathology of goiter has demonstrated that there are two types of goiter of endemic occurrence. Only a pathological differentiation of these goiters has so far been made; an etiological differentiation is not yet possible. Whether the two pathological types represent a different response of the individual to the same goiter-producing agents, or the

different results of different casual agents, we are not in position to say.

If we look at the normal thyroid gland secretory phase, and the other is the picture of the colloid phase. Each is produced in its own fashion. If we study the distribution of the two substances secretion and colloid, we find that, up to puberty the thyroid gland is particularly engaged in producing secretion, whereas colloid is produced throughout childhood at a more or less steady low level. Which is the more impor-

* Read before the Monongalia County Medical Society, Tuesday, February 7, 1928.

tant, the secretion or the colloid? Holstead and Marine seem to have answered that question. They demonstrated, and it has since been amply confirmed, that amputation of increasing portions of the thyroid gland increases simultaneously the proportion of the secretory phase (which they termed hypertrophy), in the remainder of the gland. This change continues until about one-third to one-sixth only, of the gland substance is left, at which point nothing but secretion is produced. Of the two histologically recognisable phases in the gland, the body decides for itself that the most important is the secretory phase. Furthermore, up to puberty, in pregnancy, and all clinical conditions known as "hyperthyroidism," the measure of the activity of the thyroid gland is the amount of tissue in the secretory phase present, and even more significant, is the fact that hypothyroidism is also measured by the secretory phase or its absence from the gland is the measure of the hypothyroidism. Colloid is present in abundance in all but one of these conditions, but colloid affords a measure neither of thyroid activity nor thyroid inactivity. Clearly then, secretion and colloid must not be confounded one with the other.

There is nothing more striking in histophysiology than the contrast between the thyroid gland of a child of 12 and that of a child of 16. At 12 years there is an abundance of secretion and an abundance of colloid. At 16 years search must be made to find secretion amid the abundance of colloid. That is to say, when physiological differentiation is accomplished and the gonads take on their excretory function, the need of secretory activity in the thyroid is reduced to a minimum. When physiological differentiation is again demanded, as it is in pregnancy, the gonads again cease to excrete and the thyroid again takes on intense secretory activity. The young animal and the female, then, are peculiarly dependent upon the thyroid secretion. By thyroid secretion I do not mean the thyroid hormone-thyroxin. Thyroxin is only a hormone, and is probably related to the thyroid secretion in much the same way as insulin is to pancreation.

Having recognized the difference between the secretory phase and the colloid phase of the thyroid, it at once becomes apparent to the pathologist that there are two types of goiter which occur in endemic zones. We may speak of these two endemic goiters as (1) a true hypertrophic goiter; and (2) a colloid heterotrophic goiter. The goiters differ from each other markedly. The hypertrophic goiter represents a balanced compensation following upon the stimulus of some deficiency, or excess. The colloid goiter represents a decided imbalance of thyroid function; a dystrophy. These judgments are made upon the only available criterion we have, viz. histo-physiology.

That there are two types of endemic goiter in children is already well recognized by workers in the different goiter-zones. Their differentiation, however, depends upon clinical facts. The first—a thyroid swelling with definite evidence of hyperthyroidism. The second—a thyroid swelling with neither hypothyroidism nor hyperthyroidism. Now, I have pointed out above that the colloid goiter represents an abundance of thyroid function as demonstrated by the complete absence of the histo-physiological picture of secretory activity. We would, therefore, identify the colloid endemic goiter with the "hypothyroidism" group. This leaves the other clinical group to be identified with our hypertrophic goiter.

The Iodine Question—So far as our knowledge goes the thyroid hormone-thyroxin, seems to contain iodine as an essential part of its constituents. We must, therefore, assign a specific function to iodine in the thyroid physiology. When we come to study the general action of iodine, as a therapeutic adjunct to the diet, on the thyroid gland of animals, we find that both secretion and colloid are directly influenced by the administration of iodine. We find, in fact, that iodine influences the thyroid gland under all normal circumstances. Iodine increases enormously the flow of fluids through the thyroid gland. This can be seen in life when the gland is exposed on the operating table after iodine administrations. Not only is this true of the thyroid, it also applies to the liver, pancreas and kidneys. In other

words, iodine in therapeutic doses may be described as a general lymphagogue.

Perhaps the most important observation that has been made is the effect of iodine on normal activity secreting thyroid. (The hypertrophy and hyperplasia of the literature.) If the animal to which the iodine is to be administered is either pregnant, or at the critical period of puberty, *i. e.*, when secretory activity is normally at its height, then iodine exaggerates and may even augment the secretory activity. Marine in his original observations demonstrates the same fact that "critical" hypertrophy (hyperplasia as he calls it), is not banished by the use of iodine.

Iodine as a general lymphagogue affects the turnover of both secretion and colloid in the gland. It does not convert secretion into colloid either qualitatively or quantitatively as judged by histological appearance. Provided secretion is a critical necessity as at puberty, during pregnancy or after ablation of two-thirds of the gland, iodine seems to enhance the secretory activity.

There is an apparent exception to this rule, which explains certain findings of Marine, Mellanby and others. In certain animals, fed on special diet the thyroid becomes loaded with some material producing a picture which has been confused with secretory activity (hyperplasia). If the diet is changed the material slowly disappears from the gland. An analogy will illustrate the probable meaning of this picture in the gland. In animals fed on carbohydrates the liver becomes laden, for a time, with glycogen, which is soon distributed more evenly in the body when the diet is changed. The same seems to be true of this diabetic loading of the thyroid parenchyma. Iodine undoubtedly assists the more even distribution of this substance or checks its absorption from the gut in experimental animals, but, if this loading of the parenchyma occurs at puberty or during pregnancy even iodine does not remove the critical amount of secretory tissue though it may unload the gland. Indeed, any critical hypertrophy, including hypertrophic goiter, is stimulated by the administration of

iodine, and as often as not the balance is thereby upset.

The "lack of iodine" theory cannot be tested in the laboratory since an iodine-free diet must be a synthetic diet and that in itself we know to be a pathological diet. It may be said that in the normal animal there is no lack of iodine, and therefore the therapeutic doses given are not supplying a demand for iodine but acting as a pure poison. That may be so, but it has little weight since neither of the endemic goiters in question are devoid of iodine. Only one goiter contains no iodine and that is the goiter of primary Graves' disease, and it contains no colloid. All other goiters, including the goiter of secondary Graves' disease and endemic goiter, contain iodine and thyroxin. There is a further point, if the lack of iodine gives rise to goiter, it cannot give rise to the hypertrophic form of goiter. It is not possible to conceive a productive hypertrophy arising from the absence of the essential element that is to be produced by that hypertrophy. Whatever theory is adopted it is evident that the hypertrophic endemic goiter must not be stimulated by the administration of iodine. The risk of inducing the pathological condition of secondary Graves' disease is considerable. Iodine Basdowii is the term given to this clinically well recognized misapplication of iodine therapy to hypertrophy of the thyroid gland. Not only is this obvious from the histo-physiological conditions presented, but it is well recognized by all clinicians who have had a sufficient experience in treating goiter in the young subject.

In the birth of our present knowledge or want of knowledge, we must postulate that the continuous use of iodine can do nothing but harm to the critically balanced hypertrophic goiter in the young. The hypertrophy probably is an adjustment of the differentiating individual to his environment. We should not meddle with this adjustment. We must look rather for the cause of the hypertrophy, which we have seen is just as likely to be too much as too little iodine.

Now for the colloid endemic goiter. The

colloid goiter, from the histo-physiological point of view, is definitely an imbalance of thyroid function. Colloid goiter is almost universally recognized as a hypothyroid state. The colloid goiter may actively double its size in a few weeks, yet at no time is there any evidence of the secretory phase in the gland (no "hypertrophy," as it is called). It is the absence of the secretory phase that is significant and makes this condition a dystrophy. Yet there is not an absence of iodine in the colloid goiter; though the percentage of iodine may be low, the total iodine may be high. It may be that this iodine is lost to the body generally by being locked up in the thyroid. I do not propose to offer that possibility as a solution of the problem. The cause of colloid goiter is yet to be found. (Crotti believes he has found a protosoon which is the etiological factor.) The only satisfactory experimental colloid goiter we know of was produced by McGarrison by excess of calcium in the diet. This, like the "loaded" gland, is equally affected by iodine. It softens and dissolves as Kocher showed of the clinical colloid goiter. It is probable that any secretory activity induced by iodine may be of distinct benefit to the colloid goiter, inducing perhaps, the utilization of the stored iodine. It would be, however, a general lymphagogue effect and not a specific effect, and, being a general rather than a specific effect, its influence is likely to wane by continuous medication. But on the whole, there does seem to be some justification for the use of iodine in colloid endemic goiter. The diagnosis of hyperthyroidism, that is, the clinical condition associated with the goiter, is an absolute *sine qua non* to the use of iodine. There is no other means of distinguishing this goiter from the hypertrophic endemic goiter, and so far as we know, they may both occur in the same zone.

CONCLUSION

(1) No theory exists as yet which justifies the administration of iodine to the public en masse.

(2) No existing experiment on the administration of iodine to goiterous children

can be complete or the data of value until children have become fully differentiated functioning adults, at about twenty years of age.

(3) A clinical diagnosis must precede the use of iodine on the goiterous individual even in endemic zones.

(4) Prophylactic iodine treatment of non-goiterous children since it must rest on the trial and error method, can only be used by the individual physician on the individual patient.

We must, therefore, follow the lead given by the leading goiter workers. They are on the right lines, firstly, in treating the endemic goiter in clinics; secondly, in making a clinical differentiation of the types of endemic goiter; thirdly, in giving differential treatment to endemic goiters according to the diagnosis. Any form of prophylaxis based on the amount of ignorance that enshrouds the goiter question is as likely to do harm as to benefit the public. Conservatism is a safe policy in all matters of health.

REFERENCES

Williams and Pearse.
Halstead and Evans.
Marine.
De Quervain.
Eckstein.
Berry.

Intestinal Tuberculosis*

By FRED A. BROWN, M. D.
Hopemont, W. Va.

DURING the course of any disease complications often arise that alter the prognosis or treatment of the primary infection. In certain instances these complications are very difficult to diagnose, especially in the more chronic diseases or in those in which no specific diagnostic methods are known. Or when a diagnosis has been made the clinician is often helpless because of the lack of any recognized or specific remedial agent.

Tuberculosis as a disease furnishes not only its problems in diagnosing the most usual or primary form, that is pulmonary tuberculosis, but presents even greater diffi-

* Read before the Monongalia and Preston County Medical Societies at Hopemont, W. Va., April 4, 1928.

culties when certain of its complications are being sought for. Those, such as tuberculosis laryngitis, infection of a bone or joint, meningitis, or glandular involvement, while presenting difficulties in treatment are in most cases fairly easy to diagnose because of the manifest symptoms and the available means of diagnosis. However, when one approaches intestinal tuberculosis, which constitutes the most frequent and one of the most dreaded complications of pulmonary tuberculosis, a difficult problem is encountered, not only in the diagnosis but also in the treatment. Difficulty in diagnosis because of the obscure symptoms, difficulty in treatment because of the late recognition of the disease.

Secondary tuberculosis infection of the intestinal tract has been known since the time of Hippocrates yet its recognition, except in frank cases, until recently, has proven a stumbling block to those specializing in this field of medicine. While occurring more frequently in the moderately and far advanced stages of the pulmonary form, it does occur in the minimal or incipient stages as has been proven by those skilled in the most modern methods of diagnosis. Various figures have been placed on the percentage of pulmonary cases in which it constitutes a complication, ranging from 50 to 80 per cent of those cases that come to autopsy.

As the name implies, intestinal tuberculosis is an active infection of the intestines by the tubercle bacilli, usually confined to localized areas and causing definite ulcerations. The mode of infection may be due either to the intestine by the blood stream or the more commonly accepted theory that it lodges in the lymphatics of the intestinal wall after having been carried there by the swallowing sputum that contains the bacilli.

The earliest changes as a result of such infection are noted most often in the lymphoid follicles in the wall of the intestines. With a progression of the infection these small areas of infection undergo degenerative changes and caseation sets in. This nodule formation varies in size but frequently is as large as a bean. At this stage healing may begin and continue un-

interruptedly but more often the mucous membrane over the apex of the swelling necroses and bursts to form a crater like ulcer. While a single ulcer formed in this way is usually small, larger ulcers are formed by the coalescence of several of these smaller ones.

The most common site of the early lesions is in the ileo-cecal region, but in addition to this, infection with ulcer formation occurs frequently in the ileum, cecum and colon.

Probably no complication of any disease presents a more variable and indefinite clinical picture than that manifested in intestinal tuberculosis, and especially is this true in the early stages when a diagnosis is so essential if one is to cope successfully with the disease. Even in the presence of extensive disease, abdominal symptoms may be absent. It is very peculiar that such a condition can exist without a diagnosis being made.

Pain and diarrhea are the two most common symptoms of intestinal tuberculosis and by no means are either of these symptoms always present. Pain if present during the early course of the disease may amount to nothing more than a slight discomfort, noticed chiefly after meals. As the disease progresses this discomfort gradually changes to a dull, indefinite pain which the patient is unable to localize, and which apparently does not always appear near the location of the infection. It is usually transient and occurs at irregular intervals, often disappearing for several days only to return in a more severe form as the disease progresses. Ultimately the pain assumes a crampy character, the intervals between attacks become shorter, and the patient is able to localize the pain near the site of the tubercle or ulceration.

The ingestion of food and very frequently water will bring on the pain with the result that the patient is unable to take the necessary amount of nourishment.

The association of diarrhea is familiar to most practitioners and has been since the recognition of this form of disease. However, many cases come to autopsy in which an extensive involvement of the intestines is shown without diarrhea ever having been

present. When diarrhea occurs it is a valuable symptom, but its absence means nothing.

Often the forerunner of a diarrhea will be the disappearance of a previous constipation, the stools becoming somewhat soft. There may be attacks of diarrhea lasting but a few days with a long interval between, but gradually with a progression of the pathological lesion the attacks become more severe and persistent. I have seen several cases in which the stools numbered from fifteen to twenty in a day.

Loss of appetite is a very frequent symptom. In other cases there will be a desire for food, but after eating a few bites this disappears. In this type case pain is nearly always present after the ingestion of food. Quite frequently nausea is an early symptom, coming on immediately after meals. Ultimately vomiting will occur frequently, as the disease progresses.

The temperature runs no definite course. It may be normal or elevated but in most cases is very irregular, being normal or slightly elevated for several days only to jump to 100 or more for the next few days.

Nervousness is almost a constant finding in these cases, and this complication will frequently change a quiet, composed personality into one that is of a nervous, irritable, apprehensive type.

The intestines may become involved in any case at any stage of the disease, and constituting as it does the most frequent complication of the pulmonary form, its presence is always to be suspected in those cases whose lung environment does not seem to account for their failure to improve.

The abdomen early in the course of the disease may present no definite physical findings, or in a few cases there may be distention with definite tenderness and where the cecum is involved a definite thickening often can be made out. Later in the course of the disease, tenderness and pain on pressure are nearly always present, together with a definite palpable mass and varying degrees of muscular rigidity.

There are no distinct and characteristic laboratory findings pathognomonic of intes-

tinal tuberculosis with the possible exception of the X-ray evidence.

Tubercle bacilli may be present in the feces, but this is also true of cases in which there is no intestinal involvement, due to their being present in swallowed sputum. Occult blood may be present at times as in the case with pus. Examination of the blood usually reveals a secondary anemia, with a slight elevation of the white count, the latter being more apt to be present in those cases in which there is a peritoneal involvement.

One can readily see what an obscure clinical picture intestinal tuberculosis can present, and even the trained and experienced observer depending on his clinical findings often fails to make a diagnosis, especially in the early course of the disease.

The outstanding contribution to the study of this complication in recent years, has been that of Lawrason Brown and H. L. Simpson of the Trudeau Sanatorium.

After extensive roentgenological examination of the intestinal tracts of a large number of patients they were able to set forth certain findings that are almost pathognomonic and by which the clinician is able to diagnose early infection which is so important if success is to be had in the treatment. Their entire work is based on a hyperfunction or hypermotility either localized or more generalized of that portion of the intestinal tract that is involved by the infection, the disturbance in function being caused by irritation of the diseased area from contact with the intestinal contents.

This condition is more readily demonstrated when the lesion or ulceration is located in the cecum or colon, where oft-times sufficient spasm of the intestinal wall is present, that fluoroscopic examination, after the barium has had sufficient time to reach the first portion of the large bowel, will permit one to get but a fleeting glance of a filled cecum or colon, before the local or more generalized spasm or hypermotility occurs. Should the spasm be confined to the area of ulceration alone, the shadow cast shows a definite narrowing, irregularity in contour or a complete absence of barium in this region. However should the infection be more extensive or in some cases.

even when confined to a small area this spasm will manifest itself throughout the entire length of the cecum and ascending colon, with rapid propelling of the contents towards the distal colon. In one case, which I recently observed, this spasm was so great that at no time during the examination was I able to outline the entire length of the ascending colon and while the terminal ileum and a portion of the transverse colon were well filled, any barium that entered the cecum was rapidly propelled onward, and the diameter of the shadow cast was never larger than that of a lead pencil.

In the small bowel ulceration causes apparently the same disturbance of function, that is spasm or hyperactivity, but since the rate of movement here is normally more rapid, it becomes more difficult to interpret a hypermotility. When spasm occurs, there is a temporary stasis of the barium, just proximal to the spasm. This delay often persists for a considerable period of time and in an effort to overcome the obstruction caused by the spasm a temporary dilatation of the proximal segment occurs. This persistent segmentation and dilatation are the only changes upon which a diagnosis of enteritis may be based.

However, there frequently occurs a gastric retention in these cases undoubtedly due to some reflex caused by distention of the proximal segment of the intestine, from the inability of its contents to pass onward.

In some cases the findings will be somewhat obscure and it becomes necessary to do repeated examinations until it is seen that such changes as have been described occur at the same location each time.

The various roentgenological findings that have been given only indicate that an ulceration is present, its tuberculous nature can be inferred when occurring in a case of pulmonary tuberculosis and especially in cases in which the clinical picture is suspicious of such an infection.

Constituting as it does a serious complication in any case of pulmonary tuberculosis, regardless of the stage, the same general prognosis may be applied, that is, the earlier the diagnosis is made and proper treatment instituted the more favorable the

patient's chances for recovery. If a diagnosis can be made while the general condition is good, the pulmonary infection in an early or moderately advanced stage, and the intestinal lesion not extensive, a great deal more can be accomplished by proper treatment than when the patient has passed into the far advanced stage with extensive intestinal lesions, when most measures that may be employed are usually only palliative.

Various therapeutic measures have been tried in the treatment of intestinal tuberculosis, including surgery, X-ray therapy, intraperitoneal injection of oxygen, drugs and heliotherapy. Of these the last two are all that I have had experience with and my discussion of the treatment shall be confined to their uses.

All that can be hoped for in the employment of drugs is an alleviation of symptoms and I have confined their use to those patients presenting such symptoms as diarrhea or pain, where heliotherapy had failed to give relief due usually to an extensive intestinal and pulmonary involvement. In this type case any of the various remedial agents for the checking of diarrhea or relief of pain may be employed and quite frequently the trial of many is necessary before relief is gotten. The use of calcium chloride intravenously in 5 to 10 per cent solution in checking severe diarrhea has been reported by several.

Heliotherapy either natural or artificial seems to be the form of therapy that gives the best results in the majority of cases.

On account of climatic conditions here the air cooled quartz lamp has been used in the treatment of our cases. The technique employed consists of an initial exposing of the entire body, both front and back with the exception of the head, for three minutes front and three minutes back with a tube distance of 36 inches. The time of exposure is increased two minutes for each side of body each day until 30 minutes is being given front and back. During this time the tube distance is maintained at 36 inches. Treatments are given daily. After 30 minutes have been reached front and back in order to conserve time, the tube distance is reduced to 12 inches. At this distance

three minutes is equal to 30 minutes at the old distance, since the amount of light any object receives is directly proportional to the square of the distance from the source of light. However at this distance two exposures are necessary on account of the narrowing of the field over which the rays spread, one over the upper half of the body and one over the lower half.

The time of the exposure is maintained at three minutes front and back for two days and then increased one minute each day until 10 minutes are being given front and back. Longer exposures seem to give no added benefits and at times are not tolerated by the patient.

In cases which I have treated, pain, nausea and vomiting have been the symptoms which were most quickly relieved and their relief in the favorable cases occurs fairly soon after the institution of treatment, usually within three weeks to two months. In those cases with diarrhea the same length of time witnesses a reduction in the number of stools. With a subsiding of these troublesome symptoms the patient's general condition begins to improve, but usually several months' treatment is necessary before this is marked.

The length of time such treatment should be carried out varies with the individual, but it should not be discontinued until the patient is free from clinical symptoms and subsequent roentgenological examination shows a disappearance of the findings on which a diagnosis was based, this being due to a healing of the lesions.

A case I now have under treatment illustrates the relief that heliotherapy with certain general measures can bring about. This patient, a male, age 22 years, was admitted to the hospital and on examination presented symptoms and findings, both from a physical and an X-ray standpoint of an advanced pulmonary infection, the left lung being involved from apex to base, while that in the right lung was localized above the third rib and was not as active as the infection in the left lung.

In addition to the pulmonary infection, symptoms indicative of an intestinal complication, were present, this being confirmed by fluoroscopic examination.

After a few weeks' observation, during which time the patient grew gradually worse, collapse of the left lung was resorted to. A good collapse was obtained but with no apparent effect on the clinical course of the disease. On the contrary there was an exacerbation of the intestinal symptoms. Pain appeared in the right iliac region, which was severe and almost constant.

Diarrhea set in and the stools numbered from five to eight each day. The temperature was rarely under 101 in the evening. Loss of weight was fairly rapid and nausea and vomiting occurred several times daily.

Two months after the institution of artificial pneumothorax, during which period of time the above symptoms persisted, heliotherapy was resorted to, using the technique described above. Within two weeks the pain had greatly subsided, the stools had decreased from eight as a daily maximum to four, nausea and vomiting had disappeared. The temperature had receded until it rarely went above 99.8 in the evening.

This patient has now been on heliotherapy four months and his improvement has been rapid. The pain has entirely disappeared, the stools number one to two in twenty-four hours, the temperature has been normal for the past month, and he has gained about 15 pounds in weight. The pneumothorax has been continued.

Recent fluoroscopic examination reveals that the hypermotility, or spasm, formerly noted in the cecum and ascending colon is not near as marked as before the institution of heliotherapy.

In all these cases the rigid enforcement of treatment of the pulmonary condition is essential.

In addition dietary measures are necessary, especially in those cases with diarrhea when all foods that tend to excite peristalsis abnormally should be avoided.

In the final analysis we can expect results in proportion to the stage of the pulmonary infection in which we are able to make a diagnosis and proper treatment begun and we owe it to those under our care to see that no stone is left unturned in diagnosing and treating early this complication which only adds more to the burden of an already chronic disease.

Toxemias of Early Pregnancy*

By JAS. R. BLOSS, M. D.
Huntington, W. Va.

I SHALL DISCUSS only the toxemias usually occurring in the first half of pregnancy. It will aid us in this discussion if we remember that comparatively little is even yet known as to the origin of these toxemias. While this is true yet quite a good deal is known concerning their prevention, and about their relief, especially in the early stages, if a proper understanding of the problem is grasped.

The prompt relief of the very mild symptoms of morning nausea seems to me important if we are to prevent the development later of that grave condition—hyperemesis gravidarum.

If we will remember that in the physiology of pregnancy alterations in the maternal functions occur which maintain the mother in a normal condition physically and yet provide nourishment for the developing foetus, and at the same time care for the elimination of its waste products, we can then more clearly outline our therapeutic procedures.

The classification of the vomiting of early pregnancy into the reflex, the neurotic and the toxemic types may be used if one so desires. To me it does not seem very satisfactory. They are all of a toxic origin in my opinion. True there may be uterine displacements or cervical erosions, or some condition of rectal irritation present. In our examination of these patients such possible sources of disturbances are searched for and an effort made to correct them. But why have these abnormal conditions not caused disturbance reflexly before conception and produced nausea? Most of them have existed previous to pregnancy.

Regarding the type classed as neurotic there does seem some foundation for so considering a certain number of our patients. Yet if we carefully study them we will find that a portion of these "think" they have to be sick each morning. They have heard it spoken of and insisted upon, and they

think they must run true to form. Another group rebel against pregnancy; they do not wish it because of the interference with the social life they lead; they are afraid they will not live and so on. These patients worry and fret until they cannot eat and shortly will vomit if they do.

The toxemic manifestations vary in severity from the mild disturbance with some nausea, and possibly vomiting in the morning to that grave condition which, unrelieved, produces death. It matters not whether the toxins producing this condition are of foetal or maternal origin, the fact remains that there is a failure of the maternal mechanism to make those necessary physiologic adjustments rapidly enough to adequately handle the situation. Let us remember that in those patients succumbing under these conditions and upon whom an autopsy is made a definite pathology is found. There is a characteristic central necrosis of the liver lobule.

With the above in mind and physiologic investigations having proven that carbohydrates assist the liver to develop its maximum defensive mechanism, it would seem that we might rather definitely outline a plan of treatment for the condition.

Patients showing a gain in weight from the beginning of their pregnancy very seldom, in my experience, have any of the symptoms of toxemia in the first half of pregnancy. This leads us to conclude that our aim is to get them to making a normal gain. This means that the maternal machine is adapting itself to the demands being made upon it.

Our therapeutic efforts are directed toward three very definite ends. First we endeavor to check the vomiting if present, or to prevent its development. Personally this is done with some of the bromide salts, my preference being sodium bromide—from fifteen to thirty grains being given by mouth every four hours. This of course cannot be done with a patient who vomits each dose. In this case the bromide is given by rectum giving from forty to sixty grains in two to four ounces of fluid at intervals of six hours. No effort is made to give food for the first twenty-four hours. After

* Read before the Kanawha County Medical Society, Charleston, W. Va., April 17, 1928.

this, if the nausea is less and the vomiting checked, the ingestion of carbo-hydrate food is begun by giving crackers, candy, glucose lemonade—small amounts at frequent intervals being preferable. Usually I advise taking something of this type every two hours. In this connection let me caution against giving bromide in too small doses. The dose must be large enough to give complete depression of the vomiting center, and their use must be continued, probably in diminishing doses for some time, possibly two or three weeks.

In those patients not seen until severe symptoms have developed the dose must often be heroic to check the vomiting, sixty to eighty grains being given by rectum at six hour intervals. Let me suggest to you that in giving these rectal injections, both of medication and nutrition, that they be placed above the sigmoid. It is a mistake to give them with an ordinary enema tip, or even with the usual catheter—it only invites failure of retention. In this more severe type of case one may usually begin nourishment by mouth after the vomiting has been controlled.

In those very severe cases showing acetone and diacetic acid in the urine we should at once use intravenous glucose solutions together with our bromide depression of the vomiting center.

Our second aim is to increase the elimination of the toxins. To this end fluids are pushed to the limit. In the milder cases by the ingestion by mouth of large amounts of water, lemonade, et cetera. The moderately severe cases may require the rectal route. Here I advise the use of glucose and sodium bicarbonate solution and endeavor to secure the retention of from two to four liters in the twenty-four hours. In the very severe examples of hyper-emesis gravidarum it may be necessary to give fluids by hypodermoclysis or intravenously. I have not used the colonic flushing with large quantities (three to five gallons) of sodium bicarbonate solution as is sometimes advised.

We must not forget the skin elimination. Our patients must be kept warm. In some we employ dry packs to help eliminate but not routinely.

Our third endeavor is to get our patient to gain back their lost weight and to this end we advise particularly a carbo-hydrate diet for a time—sweets, potatoes, bread, pastry and so on. When they have begun to add weight then the regular food plan is advised.

One cannot but be impressed that if a definite plan of procedure is adopted in these cases, the development of the severe type—hyperemesis gravidarum—can practically be prevented if the fundamentals—stop the vomiting, increase elimination and nourishment—are adhered to.

Pellagra— Report of Two Cases

By D. A. MACGREGOR, M. D., F.A.C.P.
Wheeling, W. Va.

WE PHYSICIANS, who are practicing in West Virginia are very apt to think of pellagra as a disease confined to other sections of our country. It is entirely possible that, owing to the rarity with which it is seen, we are overlooking the diagnosis in some of the occasional cases which appear in this State. The cutaneous lesions of pellagra are very characteristic. They usually occur in a collar and cuff outline on the exposed surfaces and resemble sunburn more than anything else. There is an erythematous dermatitis, followed by a brownish pigmentation and desquamation. The lesions are sharply demarcated from the surrounding normal skin and have a symmetrical distribution. We have recently seen two patients with pellagroid skin manifestations. A brief outline of their histories is given below.

The first patient was a foreigner who was admitted to the hospital on account of gastro-intestinal complaints. He had lost forty-five pounds within a few weeks. He was profoundly weak and apathetic. On the hands and wrists he had the typical dermatitis of pellagra. The patient gave a history of chronic alcoholism, and a prolonged alcoholic debauch precipitated his

* From the Medical Division of the Wheeling Clinic.

acute symptoms. He made a slow, but satisfactory recovery under dietetic management. He was given a well balanced diet with particular emphasis on fresh vegetables and red meat. No specific treatment beyond the regulation of the diet seems to be required in most of these cases. One author has recently recommended the liver diet and another speaks highly of the use of fresh brewers yeast, a medicine which is rather difficult to obtain in this country.

Alcoholism has long been considered as one of the causes of pellagra. Clinical observations indicate that pellagra is due to a dietetic deficiency. Perhaps the reason for the association between alcoholism and pellagra lies in the fact that an alcoholic on a prolonged spree is very apt to eat very little food and perhaps subsist upon the same articles of food day after day. In a recent report of one hundred cases Dr. J. V. Klauder (J. A. M. A. 90:364) cites the case of one man who lived for weeks on wine and spaghetti and another who equaled this record on liquor and soup. I have no doubt that a similar monotony of diet was the etiological factor in the case just mentioned.

The second case occurred in a patient who voluntarily limited her diet to the lowest possible minimum. Four years ago she weighed 156 pounds and was very plump. Her friends made fun of her and she determined to reduce. The idea of reducing her weight became an obsession with her. During the intervening four years she has practically starved herself. When I first saw her, two months ago, she resembled nothing so much as an animated skeleton with a covering of tightly stretched skin. Her feet and legs became oedematous shortly before I saw her and she consulted a physician because she was too weak to lift her heavy dropsical feet when she tried to walk up steps. On the hands and feet was the typical glove like dermatitis of pellagra. On account of the edema the patient was put to bed when treatment was instituted. Her weight when she entered the hospital was 95 pounds. She was placed on a very full and complete diet containing an abundance of fresh meat, fresh vegetables and fruit

and her response was dramatic. She gained rapidly in weight. The dermatitis subsided and her mental condition noticeably improved. When she was first seen there was considerable mental confusion along with apathy and despondency as is so often manifested in typical cases of pellagra.

Traumatic Rupture of Spleen: Report of Case*

By ROBERT KING BUFORD, M. D., F. A. C. S.
Charleston, W. Va.

SUBCUTANEOUS traumatic rupture of the spleen is not so common in an ordinary traumatic surgical service and I wish to report the only uncomplicated traumatic rupture of spleen. treated during a period of ten years in a fairly active traumatic service.

Case W. D., white male, age seventeen, entered the hospital March 14, 1925, with a history of an abdominal and chest injury.

Family history: Father and mother living, sister died from pulmonary tuberculosis age nineteen.

Past history: Had all diseases of childhood, pneumonia, seven years of age. Recurrent attacks of tonsillitis, no operations.

Present illness: A truck struck his wheel (bicycle) today 11:30 a. m., throwing him under the motor truck, one wheel running upon his left side. Admitted to the hospital a few minutes after injury, complaining of pain in left chest and shoulder, more marked on deep inspiration. Mild state of shock.

Examination: Temperature 97.6F, pulse 88, respiration 20. Blood pressure 90/60. Skin—multiple abrasions of cheek and hands. Eyes, ears, nose and throat negative, except tonsils enlarged and cryptic. Neck—no thyroid enlargement. Posterior cervical lymph nodes palpable. Heart and lungs normal except a mild bronchitis. Abdomen—small abrasion in left hypochondriac region, no tenderness or rigidity. Liver, kidneys and spleen not palpable. Spine, joints and extremities negative. Reflexes active. X-ray examination of chest

* Original paper.

showed no evidence of fracture.

March 15, 1925, twenty-four hours after injury, there was general abdominal tenderness and rigidity, associated nausea and vomiting, severe pain in left shoulder.

Laboratory findings:

Urine—specific gravity, 1012; albumin and sugar negative; occasional hyaline cast; a few red and white blood cells.

Blood—20,900 W. B. C., 68 polys, 30 small lymphocytes, 2 small lymph.

Impression: Ruptured abdominal viscus, probably subcutaneous rupture of spleen.

Anesthetic: Ether, drop method.

Findings: Large quantity of free blood in peritoneal cavity. No evidence of mesentery or intestinal injury. Liver, gall bladder and stomach normal. On the anterior surface of the spleen, there is a rent extending through splenic substance. Pedicle was short.

Operation.

Splenectomy, one cigarette drain. Left upper rectus incision.

Pathological report: The spleen was normal size, color and consistency. There was a subcutaneous rupture extending the full length of the gland.

Microscopic report: Splenic pulp and malpighian bodies presented a normal picture.

Final diagnosis: Traumatic subcutaneous rupture of spleen.

Post-operative course—progress notes:

Returned from operation room in profound shock, placed in a shock bed. 500 c. c. of hot black coffee given per rectum. 2,000 c. c. normal saline subcutaneously. The shock gradually subsided. After reaction, there was moderate vomiting of dark brown fluid.

March 16, 1926: 1,000 c. c. normal saline was given subcutaneously. Convalescence was smooth until the 24th. The right lung showed the physical findings of a bronchial pneumonia, associated pain, temperature subsiding by lysis. He had a rather stormy convalescence for a week. There was moderate bloody drainage daily. Drain removed on the seventh day. Wound healed well, no hernia formation. Discharged March 28, 1925, in good condition:

Blood Picture:

March 15, 1926: 20,900 W. B. C.; 68 polys, 30 lymph.

March 17, 1926: 11,500 W. B. C.; 88 polys, 10 lymph.

March 18, 1926: 12,000 W. B. C.; 80 polys, 14 lymph.

80% hemaglobin, 3,300,000 red cells.

March 19, 1926: 10,000 W. B. C.; 84 polys, 80% hemaglobin, 3,350,000 red cells.

March 25, 1926: 25,300 W. B. C. 86 polys, 10 lymph.

Discussion:

The interesting points in this case—

1. Absence of marked shock and abdominal symptoms for twenty-four hours after injury.

2. Vomiting of bloody gastric contents, perhaps due to a retrograde thrombosis of gastric vessels such as occur in resections of omentum.

3. Broncho pneumonia, (right lung) complicating on the 24th, ten days after injury, probably thrombotic in origin.

4. Increase in leukocytosis after pneumonia developed as a complication.

5. I received a letter a few days ago from his mother, stating that he was enjoying good health and was apparently suffering no ill effects from the loss of the spleen.

Lewerenz collected the records of 135 cases of subcutaneous rupture of the spleen up to 1900. Of these, 82 cases showed gross pathological changes such as malarial enlargements. In nine cases, enlarged spleen of late pregnancy was injured. The results were fatal in 104 cases, occurring in most instances during the first 24 hours. In five cases, death was delayed from two to six weeks caused by secondary inflammatory processes occurring in hematoma, supuration and peritonitis. Splenectomy was done in 25 cases and 13 recovered. Tamponade in two cases of which one recovered and suture in one which ended fatally.

Laspeyres has found in the statistics of the years, 1896-1904, 58 cases of splenectomy for subcutaneous rupture recorded. Thirty-nine recovered equivalent to a percentage of 57.2%.

Moynihan advised removal of the spleen

as the best means of saving life and should be practiced therefore as the routine method of treatment.

Willis in 1919, reported four cases of traumatic rupture of spleen with the following points in common:

1. They were all males.
2. Blow on left side of body in splenic region.
3. Secondary anemia and leukocytosis.
4. No external evidence of injury about the body.
5. Rigidity and tenderness of the abdomen.
6. All had shock following splenectomy.
7. All the spleens were practically normal in size with short pedicles and without any history of previous disease of the origin.

Three were operated on 24 hours after the injury.

In two of the cases a marked increased leukocytosis persisted after the operation over a period of from two to four weeks.

Three cases had satisfactory convalescence. One died eight days after operation.

The fatal case showed a continuous fall in hemoglobin and a decreasing leukocyte count.

In the first two cases operation was followed by direct transfusion, with apparently good results.

The author then discusses some experiments which were done in dogs in order to find out what simple splenectomy brought about in the change of the blood picture. Experiments established the fact that the destruction of red cells following splenectomy is not excessive, and that in certain cases of splenectomy following hemorrhage death occurs from a severe secondary anemia, out of proportion to the amount of blood lost, and incident to the absence of the spleen.

Pain in the left shoulder as a symptom, is of considerable value from a diagnostic standpoint.

Barnes, in 1914, reviewed the literature of considerable value from a diagnostic standpoint.

Barnes, in 1914, reviewed the literature of Brogsitter and also reports 30 cases of rupture of the normal spleen, while he reports an added one making a total of 31.

Splenectomy was done in 26 cases, mortality 7.6%. The author adds to this list 53 cases of rupture of the normal spleen, together with his own cases amounting to 57; splenectomy was done 55 times, mortality 28.88%. Suture, tamponade, or a combination of these, gives the best results.

The after results of splenectomy so far as the blood is concerned are a diminution in the amount of hemoglobin, a reduction of red blood cells and increased number of white corpuscles. These changes attain their maximum in about a fortnight and there is then a gradual return to the normal which is reached in about four months.

Pyrexia has been observed in some cases, due perhaps to slight septic infection. There is a general enlargement of the lymphatic glands. Lacretic has called attention to the pain in bones after operation and attributes it to increased medullary activity. Other changes less frequently recorded are loss of weight, great weakness, thirst, polyuria, rapidity of pulse, enlargement of thyroid gland, abdominal pain and tenderness.

Tizzanni has pointed out that all the effects which follow the removal of the spleen are less noticeable in children owing to the fact that their compensatory organs act more completely. The removal of the spleen disorganized by long standing disease is also less likely to be followed by any symptoms owing to the fact that the compensation has been progressing quietly many weeks or months before operation.

Von Stubenrauch, after his investigations of the conditions governing regeneration and replacement of the spleen after splenectomy concludes that the diminution and hemoglobin reduction of red blood corpuscles, etc., is only temporary. The function of the spleen insofar as they concern the blood may be summarized as follows: 1-bone marrow and lymphatic glands both of which are found to be increased. 2. By regeneration of the spleen itself in case of incomplete splenectomy. 3. by hypertrophy of congenital accessory spleen. By formation of new peritoneal organs "or splenoids."

Example. Bodies intermediate in structure between the lymphatics and blood glands.

Caudal Anesthesia*

By T. JUD. MCBEE, M. D.
Morgantown, W. Va.

IN THE YEARS following the discovery of anesthesia by inhalation, commonly known as general anesthesia, the abolition of consciousness was considered essential to the freedom from pain during operations. Such belief continued until Koller in 1884 demonstrated that cocaine applied to mucous membranes and by subcutaneous infiltration produced a local anesthesia so that the parts could be operated upon without pain.

Very soon after this date other experiments brought out that if a solution of cocaine were injected into the area around a sensory nerve trunk, it not only produces anesthesia at the local point but extended to the entire region supplied by the nerve injected. Thus it was definitely established that it was possible to secure anesthesia without general unconsciousness. But owing to the high toxicity of cocaine, it was used only by the most courageous men. However, it was such a great advantage to be able to perform operations without pain and without general anesthesia and its sequelae that a search was made for something less toxic than cocaine. This was found in novocaine which is very much less toxic and generally considered safe. It has been so satisfactory in local and regional anesthesia that today it is possible for 80 per cent of surgery to be done by the loss of the sense of pain produced by its use.

Anesthesia and analgesia have been defined by Allen as follows:

Anesthesia:—Denotes the loss of tactility and in its broad conception of all other sensations as well.

Analgesia:—Means the loss of the sense of pain alone.

The idea of making use of the extradural space of the spinal canal for the application of anesthetic agents originated with Cathelin, a Frenchman, in 1901. His investigation proved that it was possible to inject watery solutions into the extradural space by puncture of the lower end of the spinal canal

through the Sacral Hiatus. His success with cocaine brought about sufficient analgesia for surgical operations and other therapy in regions and organs supplied by the sacral nerves.

Stockel in 1909 further developed the same method by using novocaine and eucaine and began to use it in obstetrics.

The technic was further modified by Laven in 1910 and produced more constant results. In the years to follow many other investigators further improved the technic and with corresponding success. Chief among these were Labat who has probably done the most work and devoted all his time to regional anesthesia, doing much teaching in the larger clinics of this and other countries.

Caudal block is the simplest and most generally used and the one to be discussed in this paper.

The sacral canal is a prismatic space occupying the whole height of the sacrum. Its upper extremity is connected with spinal canal, the lower with the sacral hiatus which is covered by the sacrococcygeal membrane.

Colored fluids injected in the sacral canal of cadavers by Thompson showed that it never appears in the spinal canal or colored the upper part of the cord, showing the complete isolation of the two parts of the canal from one another by closure of dura mater. (Paper on injection of sodium iodide.) So that, although the nerves are transmitted from the spinal canal down into the sacral canal, there is no other communication between the two. This fact marks the distinction between this method of securing anesthesia and that termed spinal anesthesia in which the fluid is injected directly into the spinal canal.

The nerve branches that descend thus from the spinal into the sacral canal are called the sacral nerves. From the sacral canal they pass through the sacral foramina and out into the pelvis, forming the sacral plexuses, one of the most important of whose branches is the pudic, distributed to the genitourinary organs. The posterior branch supplies the tissues over the sacrum.

The sacral hiatus—through which the needle must be introduced before it is ad-

* Read before the sixtieth annual meeting of the West Virginia Medical Association, White Sulphur Springs, June 21, 1927.

vanced deeply into the sacral canal, is the lower extremity of the spinal canal. It is an opening resulting from the defective closure of the laminae of the last sacral vertebrae, screened by a thin layer of fibrous tissue called the sacrococcygeal membrane stretched between the sacrum and the coccyx, and bounded on either side by the sacrococcygeal ligament. It is the shape of an inverted "V" and the extremities present prominent tubercles which can be felt in most subjects. The sacral hiatus is at the apex of a small triangle between the sacrum and coccyx and outer angles being formed by the sacral horns. The hiatus is readily located by sliding the finger from the tip of the coccyx and following the gluteal fold until the converging sides of the cornu are encountered. A depression between these is the sacral hiatus.

Preparation of Novocaine Solution. The solution should be made fresh by dissolving a prepared amount of novocaine, say from .6 to 1 gm. in from 30 to 60 cc of sterile water and bringing to a boil.

Amount and strength of solution: The quantity and strength of the novocaine solution vary with different operators. The usual amount injected is 30 cc. to 60 cc. of 2 per cent solution. Some use 30 cc. of 3 per cent solution (Young and Shaw). Others advise 1 per cent solution given in larger amounts. As much as 1 gm. of novocaine can be injected into the sacral canal with safety.

Instruments. All that is needed is good syringes and needles. Accuracy of injection and effectiveness of aspiration can be secured only by having airtight connections between the needle and syringe, piston and barrel. A 30 cc. Luer syringe is very satisfactory. The needles should be fine as their stability will permit and with a sharp cutting edge. A regular spinal puncture needle of slightly smaller calibre and made of material that will spring but not break is the most desirable. Labat has developed an apparatus consisting of special syringes and special type needles which is very adaptable for regional anesthesia.

The skin over the sacrum is sterilized as

in other surgical procedures and the same aseptic precautions followed. The successful administration of the fluid to produce caudal anesthesia in any type of case either in the male or female requires a study of the sacrum, its cavity, sacral foramina, the ligaments and the pelvic landmarks.

Technique of Sacral Injection. The patient is placed face downward, with hips elevated on a pillow. This accentuates the bony landmarks and stretches the sacral ligaments through which the canal is entered. The horizontal position permits the most effective effusion of fluid through the entire canal and as shown by Labat, some of the fluid escapes through the anterior foramina and saturates the sacral plexus which is on the anterior aspect of the bone.

A wheal is made by injecting a small amount of one-half per cent solution of novocaine over the lower part of the sacral hiatus. The spinal puncture needle with its stylet in and its bevel turned upward is introduced through this wheal, exactly in the median line in a direction making an angle of about 20 degrees with the skin surface at the site of the puncture. A definite snap is felt when the needle passes through the ligament. When the needle has been correctly introduced, its stylet is withdrawn and time allowed to make sure that no blood or cerebrospinal fluid comes out. In such cases the needle is drawn back a little until the flow ceases. A syringe filled with the 2 per cent novocaine or neocaine solution is connected with the needle. The aspiration test is made before injecting the fluid, so as to feel quite certain that no intraspinal nor intravenous injection is actually made. The solution is then injected very slowly using a total of from 30 to 40 cc. of the 2 per cent solution. The solution when injected, should meet with very little resistance. The sensation of being injected into a free space should be felt.

The cushion is then withdrawn from under the hips of the patient, who is allowed to turn over on his back, with head and shoulders depressed. The usual test for anesthesia is made by clamping the anus. It should not be tried sooner than eight minutes after the injection, since the

anesthesia sets in very slowly, and the operation should not begin until the relaxation of the anal sphincter is apparent.

Failure to Get Proper Anesthesia. The percentage of patients to get proper anesthesia from caudal injection is due more to the skill of the one making the injection than to any other cause. [The percentage of failures in reports ranges from 6 to 13 per cent (Scholl, Goldstein and McBee).] The highest per cent of failures are in the hands of those who admit that the failures mostly occurred in the period when its use was first begun. Failures are most often due to technical errors. The needle may pass over the dorsum of the sacrum. It may be inserted too low, pass through the sacrococcygeal cartilage and enter the pelvis. Failure is sometimes due to deterioration of the solution.

Complications and Sequelae. Most patients react more or less to the injection of novocaine into the sacral canal. The severity of the reaction depending more on the speed in which the injection is made and especially the individual sensitiveness of the patient to the effects of novocaine than to the strength and quantity of the solution. It is usual to have an increase in pulse rate, some pallor and perspiration, some precordial distress, sensation of nausea, slight vertigo and a mist before the eyes. These usually pass off very quickly. The blood pressure is increased for a few minutes and then often drops markedly which is very noticeable, dropping from 20 to 40 points (Young and Shaw). Less bleeding is observed in the operative field. Some patients have periods of excitement that pass off very quickly. Occasionally there is a numbness and inability to use the legs for an hour or two.

The possibilities of infection, mild or severe, are very remote if the proper technique is carried out.

Post Operative Effects. One of the most satisfactory features of sacral anesthesia is the absence of after effects. In 1,000 injections, Cathelin saw no case of infection. Presumably sacral anesthesia is harmless and can be repeated if necessary. One of

Cathelin's patients received 16 injections in six months. In cases dying from malignant disease that had many sacral injections, the sacral canal and its relations were found to be unaffected.

In the service of Goldstein at the Sinai Hospital, Baltimore, Md., 266 patients were given 518 injections. These cases were not consecutive ones. Those who objected to the use of the cystoscope or had some fear instilled in them or patients who were suffering from their existing condition were the ones selected. In other words the most difficult cases were taken. Patients received from one to five injections, all depending on whether an examination or subsequent treatment was necessary.

A complete tabulated report of these as published in the *Journal of Urology* are as follows:

TABLE 1

Patients receiving caudal injections.

Sex	Successful	Pct.	Unsuccessful	Pct.
		Successful Percent.		Unsuccessful Percent.
Male	235	82.17	39	13.63
Female	7	2.45	5	1.75
Total	242	84.62	44	15.38
Total number of male patients.....				274
Total number of female patients.....				12
Total				286

TABLE 2

Recipients of one or more caudal injections.

Sex	No.	Successful Injections	Pct. of	Unsuccessful Injections	Pct. of
			Successful Injections		Unsuccessful Injections
Male	274	445	85.91	58	11.20
Female	12	10	1.93	5	0.96
Total	286	455	87.84	63	12.16
Total number of injections 518.					

TABLE 3

Types of cases receiving caudal injections.

	Cases	No. Injections	Successful Injections		Unsuccessful Injections	
			Pct.	No.	Pct.	No.
Bladder stones.....	14	34	31	91.18	3	8.82
Bladder tumors.....	18	93	85	91.40	8	8.60
Cystitis of various types..	20	20	16	80.0	4	20.0
Plain cystoscopic examin...	60	60	51	85.0	9	15.0
Prostatic hypertrophy.....	34	36	32	88.88	4	11.12
Intra-ureteral manipulat's	64	199	181	90.95	18	9.05
Cystoscopy & pyelography	70	70	54	77.14	16	22.86
Trigonitis	6	6	5	83.33	1	16.67
Total	286	518	455		63	

Success in all injections in 76.22 percent patients.

TABLE 4

Cases receiving one or more injections at different sittings.

	Number of Cases	Number of Injections	No. of Cases in which all injections were successful	
One injection.....	131	131	107	81.68
Two injections.....	96	192	76	79.17
Three injections.....	45	135	27	60.0
Four injections.....	10	40	6	60.0
Five injections.....	4	20	2	50.0
Total	286	518	218	

Success in all injections in 76.22 percent patients.

COMMENT

Sacral anesthesia has become firmly established as one of the safest and most valuable means of producing anesthesia in regions supplied by sacral nerves. It is used as a routine procedure in many hospitals in all operations on regions supplied by the sacral nerves.

There is no sufficient reason for regional and particularly caudal anesthesia not being more generally used. Conservative tendencies are very prominent among the various causes which retard the introduction of new methods. This is not only true of the public, but of the profession. The American public are convinced that they must be "put to sleep" before any surgical operation is attempted and insist upon it being done. While it was only a generation ago that the discovery of anesthesia by inhalation made it possible for the patient to be relieved of the sense of pain, which he chose to call being "put to sleep" yet this met by a large percentage of the profession with skepticism, conservatism and even condemnation.

We know that in some of our best clinics, they claim that 80 per cent of general surgery can be done under local anesthesia.

The anesthesia following caudal block involves the anus and perineum and extends more or less to the scrotum, penis, bladder, prostate, vulva, vagina and cervix, rectum and ischiorectal fossae. In short we have analgesia including everything from the sacrum behind to the symphysis in front.

Among the operations that can be carried out under successful caudal anesthesia in male: operations on the penis, scrotum, testicles, perineum, bladder, seminal vesicles and prostate. In the female: operations on

the vulva, vagina, urethra, cervix, perineum and obstetrical manipulations. Operations for hemorrhoids, fissure and fistula. Sciatica can be successfully treated as can genital and anal pruritis.

In caudal or sacral block no preoperative preparation is necessary. Neither is any hospitalization required. Most patients can leave the hospital in one hour after the completion of treatment or operation. Those that do remain in the hospital are required to do so for operative results and not for sacral injection.

CONCLUSIONS

1. That major and minor operations in the suprapubic, perineal and scrotal regions can be performed without the loss of consciousness by the use of caudal anesthesia.
2. Intravesical operations can be carried out as a painless procedure and without hospitalization.
3. Successful reinjections can be made with novocaine.
4. Poor risks for operations owing to cardiac or respiratory conditions are made better risks with caudal anesthesia.
5. Complications and sequelae from injections are practically nil.

BIBLIOGRAPHY

- Cathelin, F.: *Les Injections Epidurales*. Paris Bailliere, 1903, 231.
- Stoekel, W.: *Uber Sakrale Anaesthesia*. *Zentralbl. f. Gynak.*, 1909. xxxiii, 1-83.
- Scholl, A. J.: *Sacral Anaesthesia in Urology*. *Jour. Urol.* 1921, vi, 149.
- Allen: *Text on Anaesthesia*.
- Thompson, J. E.: *An anatomical and experimental study of sacral anaesthesia*. Galveston, Texas.
- Young and Shaw: *Epidural Anesthesia for Perineal Prostatectomy*. *Jour. Urol.* Mar. 1926, Vol. XV, No. 3.
- Goldstein and McBee: *Caudal Analgesia in Cystoscopy*. *Jour. Urol.* July, 1926, Vol. XVI, No. 1.

DISCUSSION

DR. JAMES R. BLOSS, Huntington:

How long does this anesthesia last, and what does Dr. McBee do for the fall in blood pressure?

DR. G. G. IRWIN, Charleston:

I have lately read something that might be of interest in this connection; that is that the use of barbital half an hour or so before injection does very much in cutting down the reaction.

Dr. McBee said it is possible to do cysto-

scopy under sacral anesthesia. As to the sacral nerves, I do not think those nerves are touched by the injection at the end of the cord. I assume Dr. McBee does like the rest of us—gives morphin, etc., beforehand. We may be cutting down the patient's resistance to pain a great deal, but I question whether the sacral nerves are affected by that injection. Very often we have to do a skin block as well as a sacral injection to do a bladder operative from above.

DR. J. SYDNEY RITTER, New York City:

We have been using sacral anesthesia in our urological work to quite an extent at the Postgraduate and are very well pleased with it. One or two points I think are of interest and importance. First, we had one patient to whom we gave sacral anesthesia. It was given very carefully by a competent man, who was certain he did not get in the spinal canal. This patient had anesthesia from the neck down. In looking into the literature on the subject we were unable to find anything very satisfactory; but Dr. Carter, the man who introduced sacral and regional anesthesia to us at the Postgraduate, said in injecting the solution it must be done very carefully, because in some instances the solution may be sucked up along the dura and give anesthesia. Another thing—I do not think the fall in blood pressure is nearly so marked as in spinal anesthesia or is one of the danger points; therefore I think caudal anesthesia is superior to spinal anesthesia for bladder and prostate work.

DR. McBEE, closing the discussion:

In reading a paper and trying to put over a subject it is not considered good form to soft-pedal it. I was reading a paper on the promotive side of caudal anesthesia. I want to thank the gentlemen who discussed for receiving it as well as they apparently did.

In answer to Dr. Bloss's question, you can depend upon the anesthesia's lasting an hour. Sometimes it will last two hours.

It is well to have a nurse have a blood-pressure instrument on the arm, and if the blood pressure (systolic) goes down below

100 have something there ready to inject, and if it gets any lower inject it—adrenalin or something like that. I do not believe I have seen any case on record in which the blood pressure could not be brought up. That is a very important point—that the blood pressure goes down and you do not have much bleeding.

Dr. Irwin brought out that you do not get anesthesia from the caudal injection. If he will read my paper he will find that suprapubic cystotomy is not mentioned. You can not get caudal anesthesia from the nerves not affected, and the suprapubic system is one of them; you can not get caudal anesthesia where the nerves do not go.

Regarding Dr. Ritter's discussion, I think there is not an anesthetic out and probably no kind of medicine which has been given at all times without an accident. I have seen quite marked reactions from caudal anesthesia; so have I seen quite marked reactions from ether anesthesia and from chloroform and from gas. A few of them have a stage of excitement; most of them do not. Some of them have symptoms that show they have had some anesthesia. While I do not think you ought to use caudal anesthesia and throw everything else away, I do think it is not being used as much as it should be.

The Field of the Hospital in Care of Industrial Workers*

By JAMES McCLUNG, M. D.

Richwood, W. Va.

The field of the hospital in the care of industrial workers is no different, so far as the patient is concerned, from the field of the hospital in the treatment of the kings of the earth, or the pauper. However, we must recognize the fact that the industrial workers and their dependents constitute the over-whelming bulk of our population. Especially is this true in West Virginia, and for this reason the Hospital Association should carefully consider the duty of the hospital to the industrial worker, and the duty of

* Prepared for the annual meeting of the Hospital Association of West Virginia at Charleston, in December, 1927.

the industrial employer to the hospitals of the state.

From an economic standpoint the hospital bears the same relation to the man power of the industries as the machine shop bears to the motor power and mechanical construction of the factories, shops and mines of the state. However, the success in a hospital is measured by an entirely different yardstick than that used by the industries. Their success is measured in dollars and cents—in assets and liabilities, in profits and losses. The balance sheet which the business man studies periodically at reckoning time is studied with dollar marks. The hospital computes on a different basis, and success is measured by the number of patients who have been sent out of our institutions cured or definitely improved in health in the shortest possible time, by the most scientific methods.

The development and standardizing of our hospitals in West Virginia is not for the pauper who is a charge on the community, nor for the rich man who can pay princely sums for care, but for the ordinary people, the great middle class, the industrial worker of moderate means who can afford to pay only a moderate sum for care while sick.

The purpose of the Hospital Association is to foster the spirit of co-operation for individual and mutual improvement, to promote efficiency of medical and surgical treatment, nursing care and administration, and to inculcate the proper spirit of ethics in relation to all hospitals. And the ever present and ever pressing question of finances must receive the attention and consideration of the industrial corporations employing labor throughout the state. The legislature has recognized this fact in the enactment of the Workmen's Compensation Law which takes care of the industrial worker who is injured during the course of his employment, and the motto of our present Commissioner, Mr. Heaberlin, vis., "Our interest is the injured employee, and the key note of this interest is proper surgical and hospital care," has the proper ring, and it should be the goal of every hospital in West Virginia to render such service.

It is a serious mistake to teach people that they are to be taken care of by the government, the state, or by charity. They should be taught to care for themselves. The over-zealous politician should recognize this fact, the employer of labor should recognize this fact, and the laborer himself should also so manage his business affairs that he need not be an object of charity.

The success of the West Virginia Hospital Association depends upon our ability to work out a policy and establish a standard that will render the best service within the limitations arbitrarily set by the size of our income.

No hospital should fall below the minimum requirements of the American College of Surgeons, and this fact will sooner or later be recognized and urged by the Hospital Association, the Medical Profession, and the public, and when it is adopted the association will enjoy more fully the confidence and co-operation of the West Virginia Medical Association, the State Compensation Commission, the State Health Department, and the Legislature, as well as the common people, and industrial employees themselves who require efficient surgical, medical and hospital care.

ABSTRACTS

Bone Metastasis

The American Journal of Roentgenology for September, 1927, contributes an article on "The Early Diagnosis and Radiotherapy of Bone Metastasis in Thyroid Tumors" by Dr. S. Ginsberg. The author's conclusions are as follows:

1. Bone metastasis is of frequent occurrence not only in Carcinoma and Sarcoma but also in simple Adenoma of the thyroid gland.
2. Not only during the advanced stages of such tumors does bone metastasis occur but also during the very early stages when the general health of the patient is entirely unimpaired and constitutional symptoms,

anemia, emaciation and cachexia are entirely absent.

3. Bulky metastatic bone tumors, single or multiple, occur not only with large actively growing clinically aggressive thyroid carcinoma or sarcoma but also with moderate sized or small thyroid adenomas either actively growing, quiescent or even receding.

4. Indeed extensive biologically malignant metastatic thyroid bone tumors may occur from a primary simple adenoma of the thyroid.

(a) Clinically so small and symptomless as to be overlooked during life by patient and physician.

(b) Anatomically so small and centrally lodged in the thyroid gland as not to encroach upon the capsule and therefore fail to cause any adhesions to the neighboring tissues, or any invasion of the lymph nodes.

(c) Histologically so benign as not to be distinguishable from a simple adenoma or a colloidal goiter.

5. In common with carcinomas and sarcomas, thyroid adenomas, when they metastasize to the skeleton undergo cell necrotization and cause bone erosion and destruction, with a resulting inflammatory reaction which may be accompanied by recurring attacks of all types of fever.

6. During the early stages of the development of the metastatic thyroid bone tumors, pain and swellings may be due more to inflammatory reaction induced by tumor necrotization than to any demonstrable bone destruction and distention.

7. Fluctuating and pulsating swelling are common occurrences in metastatic thyroid bone tumors when the bony cortex is eroded and perforated by the tumor growth.

8. Of unusual interest is the observation that thyroid metastatic bone tumors may functionate and undergo fluctuation in size with menstruation.

9. Remissions occur not only in metastatic thyroid carcinoma and sarcoma but also in thyroid adenoma. Even pathological fractures may heal spontaneously.

10. Bulky, pulsating bone destroying metastatic thyroid tumors disseminating through the blood stream may exist for many years and kill the patient and yet fail to show any metastasis to the lungs even at autopsy.

11. Metastatic thyroid bone tumors while most frequently multiple are occasionally single even at the time of the death of the patient.

12. The slow growth of many metastatic thyroid bone tumors makes them at times amenable to surgery.

13. The rediosensitiveness and the usual multiplicity of thyroid bone tumors point to radium and roentgen rays as the future methods of choice in the treatment of these metastatic growths.

ALEX R. MACKENZIE, M.D.,
Huntington, W. Va.

Medical Meetings

The annual meeting of the American Association for the Study of Goiter will be held at Denver, Colorado, on June 18-19-20, 1928, with headquarters at the Cosmopolitan hotel. Among the internationally eminent doctors on the program are Professor B. Breitner of the VonEiselberg Clinic, Vienna, Austria, and Professor Albert Kocher of Berne, Switzerland.

The one hundred and forty-seventh annual session of the Massachusetts Medical Society will be held at Worcester on Tuesday and Wednesday, June 5 and 6, with headquarters in the Hotel Bancroft. Principal speakers will be Dr. Edward Starr Judd of Rochester, Minn., Dr. Barry Linenthal of Boston, Mass. and Dr. Evarts A. Graham of St. Louis, Mo.

Meetings were held last month on May 9-11 inclusive by the Iowa State Medical Society at Cedar Rapids, the State Medical Association of Texas at Galveston, and the Kansas Medical Society at Wichita. The Connecticut State Medical Society held its annual meeting at Bridgeport on May 23-24 inclusive. The annual conference on Rheumatic Diseases was held at Bath, England, on May 10-11, 1928.

TUBERCULOSIS ABSTRACTS

(Copy furnished by the West Virginia Tuberculosis and Health Association)

Serial X-rays to Follow Progress

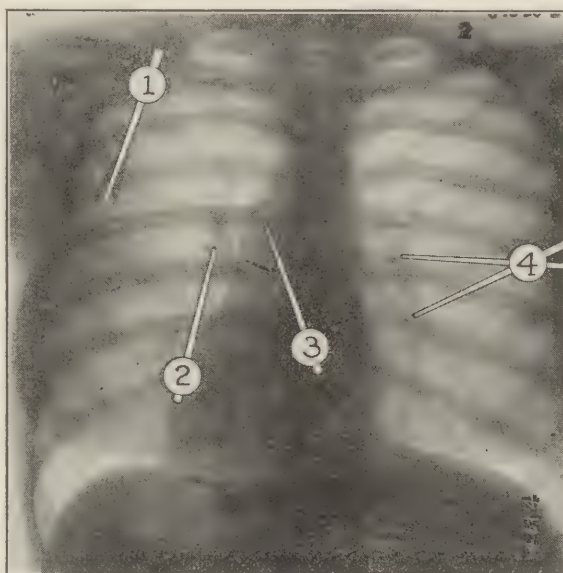
Many roentgenologists and clinicians advise that X-ray plates be made serially; that is, at regular intervals in order to determine (in conjunction with clinical findings) whether the disease is progressing, retrogressing or remaining stationary. A brief summary of the course of tuberculosis as followed by the X-ray is as follows:

In early active tuberculosis, infiltration most commonly appears in the periphery of the lung above the level of the third rib. The shadows appear light and fuzzy or mottled, densest in the centre. Leading from the mottling toward the lung hilum, there are usually seen fuzzy areas along the linear markings and the bronchial trunks. As the disease progresses, the mottling may spread over a considerable area and the shadows are interpreted as caseation and these usually appear where the dense areas in the mottling were first seen. From infiltration to caseation ordinarily requires more than a month. Later, the dense caseous shadows become less dense and often entirely disappear, thus leaving areas of rarefaction. By the coalescence of several such areas, a large area involving, sometimes, the greater part of the upper lobe may result, giving evidence of cavitation. As healing begins, the hazy outlines, particularly those at the hilum, become sharper and the areas

shrink. Definite opacity is interpreted as deposits of calcium. Consolidated areas, as they become fibrous, show heavy bands extending from the hilum to the periphery. After calcification takes place, areas interpreted as caseation increase in density and finally become sharp and opaque. Calcification is found to develop from eight months to two years. The obliteration of cavities may be shown by the X-ray. Around the areas of rarefaction (cavitation) is seen a dense ring (fibrous wall). As fibrosis increases, the ring contracts until there remains only a heavy clouding or small deposits of fibrous tissue. Modern Aspects of the Diagnosis, Classification and Treatment of Tuberculosis, J. A. Myers, Chap. ix, p. 96, Williams & Wilkins.

The X-ray is a valuable diagnostic aid in diseases of the chest. Definite roentgenological evidence of enlarged lymph nodes, plus a positive tuberculin reaction strongly indicates tuberculosis

of the juvenile type. Definite parenchymal changes seen in the X-ray film, located usually in the upper half of the chest and which coincide with the clinical findings, strongly support the diagnosis of pulmonary tuberculosis. But the X-ray must be regarded, at best, merely as an aid to diagnosis. Interpretations of the plate should always be made by roentgenologist and jointly.



Peripheral Nodule with Tracheobronchial Calcification.

In the left fifth interspace, near the posterior axillary line, is an irregular calcified nodule (1). On the shadow of the left arterial main stem at the level of the sixth rib and interspace, is a faint irregular calcium shadow (2), and another, irregularly club-shaped, lies mesially on the aortic curve at the sixth rib (3).

The homogeneous densities on the right (4) are due to blood vessels, axially radiated.

Roentgenograph and Interpretation by F. M. McPherson.

THE WEST VIRGINIA MEDICAL JOURNAL

JAMES R. BLOSS, *Editor-in-Chief* - - - - - Huntington

...ASSOCIATE EDITORS...

J. HOWARD ANDERSON
Marytown

WALTER E. VEST
Huntington

C. A. RAY
Charleston

HARRY M. HALL
Wheeling

THE JOURNAL issued on the first of each month. Entered as second-class matter, January 1, 1926. Acceptants for mailing at special rate of postage provided for in Section 1103, Act of October 3, 1917. Authorized July 24, 1919.

Subscription to Members	\$2.00 Per Year
Subscription to Non-Members	\$3.50 Per Year
Single Copies	50 Cents

OFFICERS

<i>President:</i>	
C. A. RAY	Charleston
<i>First Vice-President:</i>	
D. G. PRESTON	Lewisburg
<i>Second Vice-President:</i>	
E. L. ARMBRECHT	Wheeling
<i>Third Vice-President:</i>	
W. C. SWANN	Huntington
<i>Executive Secretary:</i>	
MR. JOE W. SAVAGE	Charleston
<i>Treasurer:</i>	
T. MAXFIELD BARBER	Charleston
<i>Delegates to A. M. A.:</i>	
JAMES R. BLOSS (1927)	Huntington
HENRI P. LINSZ (1927-28)	Wheeling
<i>Alternates:</i>	
A. A. SHAWKEY (1927)	Charleston
HARRY M. HALL (1927-28)	Wheeling

COUNCILLORS

<i>Chairman of the Council for 1928:</i>	
R. H. DUNN	South Charleston
<i>First District:</i>	
H. R. JOHNSON (1-year term)	Fairmont
C. G. MORGAN (2-year term)	Moundsville
<i>Second District:</i>	
C. H. MAXWELL (1-year term)	Morgantown
C. H. HALL (2-year term)	Elkins
<i>Third District:</i>	
JOHN FOLK (1-year term)	Bridgeport
I. D. COLE (2-year term)	Clarksburg
<i>Fourth District:</i>	
J. E. RADER (1-year term)	Huntington
W. E. VEST (2-year term)	Huntington
<i>Fifth District:</i>	
J. HOWARD ANDERSON (1-year term)	Marytown
H. G. STEELE (2-year term)	Bluefield
<i>Sixth District:</i>	
R. H. DUNN (1-year term)	South Charleston
H. A. WALKUP (2-year term)	Mt. Hope

¶ All original articles for THE JOURNAL must be made to it exclusively. Communications and items of general interest to the profession are invited from all parts of the state. Notices of deaths, removals from the state, changes of location, etc., are requested.

¶ Our readers are requested to send marked copies of local newspapers containing matters of interest to members of the medical profession. Name of sender should be given.

CONTRIBUTIONS TYPEWRITTEN

¶ Contract with present printer specifies all articles, communications, etc., MUST BE TYPED.

ADVERTISEMENTS

¶ Advertising forms will go to press not later than the tenth of each month. All advertisements must conform to the standard established by the Council of Pharmacy and Chemistry of the A. M. A.

WOMAN'S AUXILIARY

Mrs. R. V. Shanklin, Gary, President; Mrs. T. H. Harris, Parkersburg, vice-president; Mrs. W. C. Swann, Huntington, secretary; Mrs. W. D. Simmons, Slab Fork, treasurer.

Councillors

Mrs. C. G. Morgan, Moundsville, first district; Mrs. Ralph Maxwell, Morgantown, second district; Mrs. H. D. Price, Parkersburg, third district; Mrs. J. R. Bloss, Huntington, fourth district; Mrs. A. G. Rutherford, Welch, fifth district; Mrs. E. S. DePuy, Beckley, sixth district.

Delegates to Woman's Auxiliary of A. M. A.

Mrs. R. V. Shanklin, Gary; Mrs. B. S. Preston, Charleston. Alternates—Mrs. George Jeffers, Parkersburg; Mrs. W. B. Scherr, Morgantown.

STANDING COMMITTEES

Medical Defense Committee

R. H. Dunn, South Charleston, chairman; C. G. Morgan, Moundsville; I. D. Cole, Clarksburg.

Committee on Scientific Work

R. U. Drinkard, Wheeling, chairman; O. B. Biern, Huntington; A. H. Hoge, Bluefield.

Public Policy and Legislative Committee

R. A. Ireland, Charleston, chairman; R. H. Walker, Charleston; James McClung, Richwood; C. R. Ogden, Clarksburg; D. A. MacGregor, Wheeling.

Committee on Medical Education

John N. Simpson, Morgantown, chairman; W. T. Henshaw, Charleston; W. S. Fulton, Wheeling.

Committee on Professional Relations

John R. Shultz, Charleston, chairman, (1-year term); A. G. Rutherford, Welch, (2-year term); W. R. Goff, Parkersburg, (3-year term); Hugh G. Nicholson, Charleston, (4-year term); E. P. Smith, Fairmont, (5-year term)

Workman's Compensation Committee

W. A. MacMillan, Charleston, chairman; J. Ross Hunter, Charleston; R. H. Walker, Charleston.

Committee on Public Health

David Littlejohn, Charleston, chairman; John Thames, Charleston; Will McLain, Wheeling.

Surgical Section

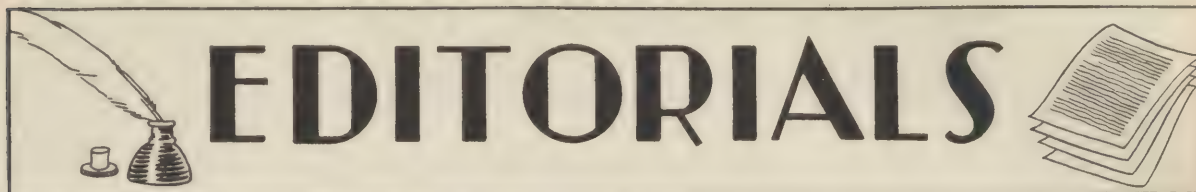
Wade H. St. Clair, Bluefield, chairman; John E. Cannaday, Charleston, secretary.

Eye, Ear, Nose and Throat Section

E. C. Hartman, Parkersburg, chairman; I. D. Cole, Clarksburg, secretary.

Hospital Association Officers

H. F. Spillers, Wheeling, president; L. W. Lawson, Logan, president-elect; J. E. Wilson, Clarksburg, first vice-president; R. A. Ireland, Charleston, second vice-president; J. S. Turk, Wheeling, treasurer.



EDITORIALS

Law Enforcement

By the time this issue of *The Journal* is off the press, the primary election in West Virginia will be over and the successful candidates for nomination will be turning their campaign guns toward the general election next November. Just before these campaign guns begin to open fire is an opportune time for the members of the West Virginia State Medical Association to take stock of the various office seekers and to particularly fix their minds for a brief spell upon the state senate and legislature. When there are a score of candidates for one office it is difficult to sound them out. When there are but two candidates, if you have no political preference, it is a simple matter.

This editorial will deal mainly with the illegal practitioners of medicine in West Virginia. The problem is not peculiar to this state. Every state journal that comes to the office of our own publication is harping upon the same thing. It is a problem that has never been successfully solved and the difficulty of solution invariably lies in the hands of the enforcement officers of the medical practice acts of various states.

West Virginia does not need a new medical practice act. The present statute now in effect is very satisfactory and it covers the field of medicine even better than might be expected. But West Virginia does need enforcement.

Our committee on public policy and legislation, together with the state health council, has worked out what we believe is a real

and final solution of this perplexing problem of enforcement. The secret lies in the employment of a full-time attorney who has no other duty except that of ridding the state of illegal practitioners, quacks and pill peddlers. An appropriation for the employment of this attorney will be requested from the next legislature. Now is the time to start working for its passage. Educate your favorite candidate upon the merits of this proposed legislation and then work for his election.

The West Virginia State Medical Association has never been and never wants to be a political organization. But we must fight for certain things that will protect both ourselves and the public if we are to expect the advancement of scientific medicine in this great state. If we succeed in getting through an appropriation for the employment of a medical practice act enforcement officer, then will we lead down a new path over which our sister states will soon follow.

Lewisburg Gets T. B. Meet

The next annual meeting of the West Virginia Tuberculosis and Health Association will be held at Lewisburg on June 20 and 21, according to a recent announcement made from the Charleston office of the organization. Lewisburg was designated as the 1928 meeting place at a meeting of the state executive committee held on April 27 and attended by Dr. J. G. Pettit of Hope-mont; Dr. Walter E. Vest of Huntington; Mrs. S. W. Price of Scarbro; Mrs. James M. Preston of Lewisburg; Miss Nan K. Hepburn of Piedmont, and Mr. George C. Rowell, the executive secretary.



NEWS NOTES OF COMPONENT SOCIETIES



Lewis County

The Lewis County Medical Society held its regular monthly meeting on May 8 at the Memorial Library, Weston. Dr. M. D. Cure, president, was in charge. During the meeting, a resolution was passed on motion of Dr. E. T. W. Hall endorsing the permanent health unit for Lewis county and requesting its continuance.

The feature of the meeting was a paper by Dr. John O. Rankin of the Wheeling Clinic on the subject, "Pathology of the Back, Examination, Symptoms and Treatment," illustrated by lantern slides. Dr. Rankin was assisted in presenting his paper by Dr. R. B. Bailey, also of the Wheeling Clinic.

Those present were Dr. Cure, Dr. George Snyder, Dr. W. P. King, Dr. E. T. W. Hall, Dr. W. H. Greene, Dr. G. R. Post, Dr. A. F. Lawson, Dr. H. B. Neagle, Dr. G. M. Burton, Dr. O. L. Hudkins, Dr. Rankin and Dr. Bailey.

O. L. HUDKINS, *Secretary.*

Kanawha County

An interesting meeting of the Kanawha Medical Society was held in the former Supreme Court room of the Capitol Annex building, Charleston, on the evening of May 8. Dr. R. A. Ireland of Charleston read the scientific paper of the evening on the subject, "Acute Endocarditis." His paper was ably discussed by Dr. D. G. Preston, Dr. W. B. Wilson and Dr. M. I. Mendeloff.

It was decided at this meeting to extend an invitation to the West Virginia State Medical Association to hold its 1929 meeting in Charleston as the guests of the Kanawha Medical Society. The delegates of the Fairmont meeting were instructed to extend the invitation and to vote for its passage.

There was considerable discussion in regard to the plan for a state home for the

West Virginia State Medical Association to be erected in Charleston. During the discussion, it was proposed that the members of the Kanawha Medical Society purchase a suitable plot of ground and offer it to the state association free of charge as a building site.

J. R. SCHULTZ, *Secretary.*

Fayette County

The regular monthly meeting of the Fayette County Medical Society was held in the high school auditorium, Montgomery, on the evening of May 8, and an unusually large attendance turned out. Dr. C. A. Ray of Charleston, president of the West Virginia State Medical Association, made his official visit at this meeting and gave an interesting talk upon the work of organized medicine in this state.

The scientific papers of the evening were presented by Dr. A. R. Jones of Huntington on "Fractures of the Elbow," by Dr. William R. Laird of Montgomery, who presented a case report, and Dr. C. W. Stallard of Montgomery on "Diagnosis and Treatment of Acute Osteomyelitis." A number of the members present took part in the discussion that followed.

Visitors to the society, aside from Dr. Ray and Dr. Jones, were Dr. J. Ross Hunter of Charleston and Mr. Joe W. Savage, executive secretary of the state association.

G. A. SMITH, *Secretary.*

Central West Virginia

The Central West Virginia Medical Society met April 18th, 1928 in the Masonic Club Rooms at Richwood. The scientific discussion of the evening was given by Dr. E. T. W. Hall of Weston, an affiliate, and Dr. James McClung of Richwood. Dr. Hall's paper was on "Indications for Cesarean Section." This was a very excellent paper

and was discussed by Drs. Allen, McClung and H. S. Brown. Dr. McClung gave a paper on "The Field of the Hospitals in the Care and Treatment of Industrial Workers."

The next meeting is to be held at Webster Springs, July 18th.

In spite of the fact that the only means of getting to and from Richwood was by train and required 24 hours to make the trip, fifty per cent of the active members were present.

At the Webster Springs meeting, it is hoped to have the wives of the Central West Virginia present and have the President of the Woman's Auxiliary help establish our chapter.

Those present were: S. P. Allen, Webster Springs; C. C. Carson, Gassaway; M. T. Morrison and H. S. Brown, Sutton; E. T. Hall, Weston; L. W. Deeds and S. S. Hall, Buckhannon; James McClung, J. T. Graham, W. E. Echols, C. F. Fisher, Hugh Dunn, T. M. Winn, R. A. McCosh, Richwood.

Meeting adjourned at ten o'clock, after which a delightful banquet was served.

S. S. HALL, M.D., *Secretary*.

Ohio County

Dr. J. G. Beardsley of Philadelphia, Pa., was the principal speaker before the Ohio County Medical Society at the regular meeting held on the evening of May 9 in the Wheeling Elks' Club. His subject was "Conditions that Simulate Pneumonia." The discussion was opened by Dr. J. O. Howells of Bridgeport, O., and Dr. R. J. Snider of Wheeling.

This was an exceptionally good meeting with a fine attendance. Dr. J. W. Gilmore of Wheeling, president of the Ohio County Medical Society, presided at the meeting.

Dr. G. C. Weil of Pittsburgh read a paper on "Surgery of Diseases of the Thyroid Gland" at the April 27 meeting of the Ohio County society. Discussion was opened by Dr. J. R. Caldwell and Dr. W. P. Sammons of Wheeling.

Dr. Charles L. Summers of Baltimore, Md., was the principal speaker before the Ohio County Medical Society at its regular meeting held in the Elks Club of Wheeling on the evening of May 25. Dr. Summers'

subject was "Modern Methods of Infant Feeding," and the discussion was led by Dr. J. A. Thornton and Dr. J. R. McClung, both of Wheeling.

W. R. BOND, *Secretary*.

Logan County

The regular monthly meeting of the Logan County Medical Society was held April 18 and the attendance was record breaking, 27 being present, and the enrollment of the Society increased to 44.

Two scientific papers were read. One by Dr. T. W. Moore of Huntington on "Some General Considerations of the Nasal Sinuses" which was accompanied by lantern slides showing anatomy which was very instructive indeed. Dr. Walter E. Vest of Huntington read a paper on "Artificial Pneumothorax," bringing out results that have been obtained in recent years from this operation.

Delegates were elected for the State Medical Convention as follows: Drs. S. B. Lawson and P. B. Wingfield, with Drs. H. H. Farley and E. B. Thompson as alternates.

Mercer County

The Mercer County Medical Society held its regular monthly meeting in the city hall of Bluefield on April 27, 1928. Dr. A. H. Hoge of the Interclub Committee reported that the Clinch Valley Medical Society of Virginia would be entertained in Bluefield in the spring of 1929. Dr. R. O. Rogers of the Program Committee reported that Dr. Stuckert of Philadelphia had accepted an invitation to speak before the May meeting of the society on the general subject of "Obstetrics."

The entire evening was given over to a discussion of Pulmonary Tuberculosis and was arranged in connection with the National and State Tuberculosis associations. Dr. G. H. Barksdale of Charleston read a paper on "Some Factors Concerning the Incidence and Cure of Pulmonary Tuberculosis." The importance of a careful history was emphasized in making an early diagnosis of tuberculosis.

ANDREW E. AMICK, *Acting Sec.*

CONVENTION NEWS

Our New President

Dr. Harry M. Hall of Wheeling was elected president of the West Virginia State Medical Association at the meeting of the house of delegates held in the Fairmont Y. M. C. A. on Thursday morning, May 24. Dr. Hall will succeed Dr. C. A. Ray of Charleston and will assume the duties of his new office on January 1, 1929. Until that time, he will serve as president-elect.

The new president was born in 1877 and graduated at the age of 21 years in medi-

Dr. Hall has served the association faithfully for almost 20 years. During that period, he has held more than one important office and was a member of the publication board of the *West Virginia Medical Journal* at the time of his election to the presidency. He has also served as a member of various important committees and always discharged his duties faithfully and sincerely. He is a former president of the Ohio County Medical Society and is the president head of the Ohio Valley General Hospital.

That the affairs of the West Virginia State Medical Association will prosper under the capable direction of Dr. Hall is a foregone conclusion.

Officers for 1929

Below will be found the complete list of the new officers and committees of the West Virginia State Medical Association elected at the Fairmont meeting:

President—H. M. Hall of Wheeling.

First Vice President—J. A. Duff of Martinsburg.

Second Vice President—W. C. Swann of Huntington.

Third Vice President—B. F. Bone of Moundsville.

Treasurer—T. M. Barber of Charleston.

Editor of the Journal—J. R. Bloss of Huntington.

Chairman of the Council—R. H. Dunn of South Charleston.

Committee on Scientific Work—O. B. Biern of Huntington, chairman; G. H. Barksdale of Charleston and A. G. Rutherford of Welch.

Councillors—C. W. Waddell of Fairmont, C. H. Maxwell of Morgantown, John Folk of Bridgeport, Roy B. Miller of Parkersburg, J. Howard Anderson of Marytown and R. H. Dunn of South Charleston.

Committee on Medical Defense—C. G. Morgan of Moundsville, chairman H. A.



DR. HARRY M. HALL
of Wheeling, President-elect

cine at the Western Reserve College in Cleveland, O. The same year, 1898, he was admitted to the practice of medicine in West Virginia and has been located in Wheeling since that time. He became a member of the West Virginia State Medical Association in 1909.

Walkup of Mt. Hope and H. G. Steele of Bluefield.

Committee on Public Policy and Legislation—R. A. Ireland of Charleston, chairman; R. H. Walker of Charleston, James McClung of Richwood, C. R. Ogden of Clarksburg and D. A. MacGregor of Wheeling.

Committee on Medical Education—John N. Simpson of Morgantown, chairman; W. T. Henshaw of Charleston, W. S. Fulton of Wheeling.

Committee on Professional Relations—J. R. Shultz of Charleston, chairman; A. G. Rutherford of Welch, W. R. Goff of Parkersburg, Hugh G. Nicholson of Charleston and E. P. Smith of Fairmont.

Committee on Workman's Compensation—W. A. MacMillan of Charleston, chairman; C. A. Ray of Charleston and John E. Cannaday of Charleston.

Committee on Public Relations—David Littlejohn of Charleston, chairman; John Thames of Charleston and Will McLain of Wheeling.

Surgical Section—R. K. Buford of Charleston, chairman; B. I. Golden of Elkins, secretary.

Eye, Ear, Nose and Throat Section—I. D. Cole of Clarksburg, chairman; C. C. Jarvis of Clarksburg, secretary.

Martinsburg Next

The sixty-second annual meeting of the West Virginia State Medical Association in 1929 will be held in Martinsburg, probably during the annual apple blossom festival there. The fight for the next convention was led by Dr. J. A. Duff of Martinsburg, who finally succeeded in winning out over five other cities and resorts that had made application for the next meeting.

Invitations for the 1929 convention were extended at Fairmont by Martinsburg, White Sulphur Springs, Wheeling, Clarksburg, Parkersburg and Charleston. Early in the voting, however, it was apparent that the race was between Martinsburg and White Sulphur Springs. When it became apparent that there was a majority of sentiment in favor of the former, a motion was

unanimously passed naming Martinsburg as the 1929 convention city. Dr. Duff stated from the floor that his city would be able to take care of the crowd and that the members of the Eastern Panhandle Medical Society would make the necessary preparations for the meeting. The date of the 1929 meeting will be left to the local committee at Martinsburg but will not be decided upon until the date is fixed for the 1929 convention of the American Medical Association.

Successful Meeting

The sixty-first annual meeting of the West Virginia State Medical Association has gone down into the history of the organization as one of the best. There were 354 registrations during the three-day period and the attendance at the various sessions was all that could have been hoped for. The convention started exactly at the appointed hour and adjourned at 12:20 o'clock on Thursday afternoon. With one or two exceptions, the smoothness with which the sessions were conducted was one of the features of the Fairmont convention.

Perhaps the highest praise of all should go to the committee on scientific work and the officers of the special sections. Working together, these doctors arranged a schedule of speakers that would have been a credit to any gathering anywhere in the world. Included in the list of out-of-state speakers were Dr. Elliott P. Joslin of Boston, Dr. Martin E. Rehfuess and Dr. Carroll S. Wright of Philadelphia, Dr. Fred W. Rankin of the Mayo Clinic, Dr. James C. Mitchell of Washington, D. C., Dr. Dean Lewis of Baltimore, Dr. Albert Frieberg of Cincinnati, Dr. Howard Lilienthal of New York City and Dr. Willis C. Campbell of Memphis, Tenn. The chairman of the Scientific Committee was Dr. R. U. Drinkard of Wheeling and those who assisted in preparing the program were Dr. O. B. Biern of Huntington, Dr. Albert H. Hoge of Bluefield, Dr. John E. Cannaday of Charleston, Dr. I. D. Cole of Clarksburg, Dr. E. C. Hartman of Parkersburg and Dr. Wade H. St. Clair of Bluefield.

The members of the Marion County Med-

ical Society, under the guidance of Dr. C. M. Ramage, gave the utmost cooperation and assistance and more than contributed their share toward the success of the meeting.

Secretaries Luncheon

The annual luncheon of component society secretaries was held in the private dining room of the Y. W. C. A. cafeteria, Fairmont, at noon on May 23. In the absence of Dr. H. G. Steele of Bluefield, president of the organization, the meeting was presided over by Dr. S. S. Hall of Buckhannon, secretary. Dr. B. S. Brake of Clarksburg was the unanimous choice for president for the coming year.

Probably the most interesting discussion of the luncheon was carried on by Dr. H. W. Bond of the Ohio County Medical Society. Dr. Bond stated that the programs for all of the meetings of his society were made up in the fall of the year and that practically all of the speakers were out-of-state men. Several of the secretaries from the larger component societies were greatly interested in the Ohio county plan and it will probably be inaugurated in some of the other counties next winter.

Dr. J. R. Shultz, secretary of the Kanawha Medical Society, reported the largest paid-up membership in the state. All of the other secretaries reported their work progressing in good shape. Those present were Dr. S. S. Hall of Buckhannon, Dr. J. R. Shultz of Charleston, Dr. R. D. Stout of Grafton, Dr. B. S. Brake of Clarksburg, Dr. G. R. Maxwell of Morgantown, Dr. W. S. Bond of Wheeling and Mr. Joe W. Savage, the state secretary.

About Medical Ethics

The promotion of the medical and allied sciences, the maintenance of the honor and interests of the profession, the formation of a bond of union, the promotion of fair and honorable practice, the establishment of principles of ethics and all other objects of this society have for their main objective the better performance of service to those

in need of it. It is because of this objective that we do not deserve the charge of being the strongest of trade unions. Hippocrates laid down the ethical and civic relationship of the physician to his patient and to the public and down to the present day the principles of that relationship have ruled medical conduct. John St. Loe Strachey in "The River of Life" has this to say:

"I say, without the slightest fear that I may be overstating my case, that there is no profession which is more exposed to the temptation to forget honor, humanity and kindness than the medical profession and none in which the exploitation of human suffering is easier. Yet there is none in which the temptation is so triumphantly withstood. Let this be remembered by the public when they feel inclined to sneer at medical etiquette and to speak of it as if it were a code for maintaining selfishness and enrichment. Medical etiquette is the salvation of the patient. It is the one thing which stands between him and the dangers of exploitation. It is what makes him and his sufferings hold the dominant part in the dread dramas of pathology."

That is a layman's view of the working of medical ethics, a view which is none too common or often expressed, but is, as we know, a true statement of the position. . . . It is not contrary to our code of ethics nor to any other ethical principle that the members of a society, having as its main objective the doing good to others, should in furtherance of that objective protect and advance their own interests. Sydney Webb in "The State and the Doctor" says with regard to the interests of the medical profession:

"It is not that the doctors put forward any claim that their private interest should be upheld at the cost of those of the whole community. But it is necessary for the welfare of the community that there should be a strong, competent and adequately remunerated medical profession."—J. NEWMAN MORRIS in *The Medical Journal of Australia*.—A. M. A. Bulletin.

GENERAL NEWS

Wayne County Accepted

The "Baby" organization of the West Virginia State Medical Association is the Wayne County Medical Society, which was



DR. W. F. BRUNS
Ceredo, W. Va.

President Wayne County Medical Society

presented with a charter by the Council at the Fairmont meeting on May 21. The Wayne society has already entered into the work of organized medicine with a willing hand and a bright future is predicted for this small but efficient component group.

The Wayne County Medical Society was originally organized in 1918, but owing to bad roads over most of the county and the difficulties of travel, it was not considered feasible to continue and the society was

discontinued after one year. When the Wayne society broke up ten years ago, a number of the members affiliated with the Cabell County Medical Society, not wishing to forfeit their connection with organized medicine.

During the past few years, the situation has changed considerably in Wayne County. Hard roads have for the most part replaced those that were formerly graded and



DR. J. W. FERGUSON
Kenova, W. Va.

Secretary Wayne County Medical Society

graded roads have replaced muddy lanes. Kenova, Wayne Court House, and Ceredo have become next door neighbors. Because of this fact, and because the doctors of Wayne County wanted an organization of

their own, the first steps were taken toward this goal in the winter of 1928.

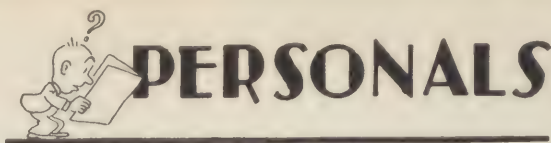
In February of the present year a meeting was called in Kenova which was attended by physicians from the three towns mentioned above. Dr. C. A. Ray, president of the state association, of Charleston, was on hand for this organization meeting and assisted in the work of moulding a permanent group. At this meeting Dr. C. F. Bruns of Ceredo, the oldest physician in the county, was elected president, Dr. A. G. Wilkinson of Wayne, first vice president, Dr. Roscoe Stotts of Kenova, second vice president, and Dr. J. W. Ferguson of Kenova, secretary-treasurer.

A formal petition signed by every member for a charter from the West Virginia State Medical Association was presented to the executive secretary and this petition was passed upon by the Council at the Fairmont meeting. From the time the society was organized in February, up until the time of the state meeting, the Wayne County Medical Society was considered as an integral part of the state organization by special temporary dispensation granted by Dr. Ray. The Wayne Society membership was one-hundred percent paid up at its original meeting last February.

The Board of Censors of the Wayne group consists of Dr. Glenn Johnson of Wayne; Dr. L. B. Dean of Kenova, and Dr. J. W. Rife of Kenova. At the present time there is little work for this board to consider, as there is only one doctor in the county who does not belong to the county society.

The membership roster of the Wayne Society includes the names of Dr. Roscoe Stotts of Kenova; Dr. L. B. Dean of Kenova; Dr. R. V. Shirley of Ceredo; Dr. W. F. Bruns of Ceredo; Dr. Glen Johnson of Wayne; Dr. A. G. Wilkinson of Wayne; Dr. J. W. Ferguson of Kenova; Dr. J. W. Rife of Kenova; Dr. B. D. Garrett of Kenova, and Dr. C. M. Vaughn of Kenova.

—Dr. H. G. Nicholson of Charleston has just been elected as president of the Kanawha County Reserve Officers Association. Dr. Nicholson is a major in the reserves of the United States Medical Corps.



—Dr. W. A. MacMillan of Charleston recently spent several days in Columbus, Ohio.

—Dr. G. G. Irwin and Dr. John E. Canaday of Charleston attended the annual conference of surgeons in Washington, D. C. last month.

—Dr. E. C. Wade of Bluefield was recently elected as president of the Bluefield Rotary Club. Dr. Albert H. Hoge was elected vice president of the same organization.

—Dr. and Mrs. J. Bankhead Banks of Charleston spent several days at White Sulphur Springs early in May.

—Dr. C. E. Gabel, former director of the laboratory of the West Virginia State Health Department, has just returned from Texas and has opened a laboratory of his own in Charleston.

—Dr. Harry G. Steele, who has been taking post graduate work in Philadelphia, has returned to his home in Bluefield to resume his practice there.

—Dr. and Mrs. H. L. Robertson of Charleston motored to Richmond, Va., about two weeks ago where they were guests of Dr. and Mrs. Stuart McGuire.

—Dr. A. H. Grigg of Beckley is recovering nicely from a recent illness.

—Dr. James McClung of Richwood spent several days in Charleston recently.

Medical Malpractice Suits

(By Czar Johnson, M.D., F.A.C.S., Lincoln, Neb.)

Every malpractice suit is potentially new medical jurisprudence. The more cases that occur the greater the probability of some new question arising and of a pronouncement of a new law, in the form of a judicial opinion, which may effect the entire medical profession.

The x-ray has become universally accepted as a reliable means of diagnosing

fractures and determining the position of fragments in the treatment. The use of the x-ray has therefore become a requirement. Courts generally hold that if an x-ray were available, whether in the possession of the physician involved or not, and because of failure to use this instrument a disability or other unnecessary hardship resulted, this failure of the physician to use an available x-ray is negligence.

If failure to use an available X-ray is negligence, why does it not also follow that failure to use the microscope under similar circumstances is negligence?

Telephone conversations and sidewalk advice and diagnosis are poor practice and are dangerous, from a liability standpoint.

Medical advice and instructions are component parts of the practice of medicine. Advice that is at variance with the customary teaching and practice in a community, or failure to give advice or instructions in the treatment of a patient is undoubtedly negligence.

Failure to give timely advice will be made an issue, sooner or later, in some malpractice suit, and a court ruling will make new law.

The Workmen's Compensation Law is an example of what may occur by judicial decisions. In some states this law has been broadened by this method until, for all practical purposes, it has become workmen's health insurance.

The trend of the times has been to trust to insurance for every known contingency.

Liability insurance does not protect the individual physician or the medical society from unfavorable medical law. Insurance compensates for some of the loss sustained and helps defray the costs required to safeguard the profession properly in the courts. I am of the opinion that the most important function of medical defense committees is to prevent law suits and, when one is inevitable, to supervise organized medical and legal defense to the end that no case be a source of undesirable medical jurisprudence.

Negligence—Fact and Opinion

Malpractice suits are predicated upon alleged negligence. Negligence, in law, is doing something which a reasonably pru-

dent person would not do under the circumstances, or omitting to do something which a reasonably prudent person would do under the circumstances.

The definition is plain and easy to remember and it seems to me, every physician who has been graduated from a medical college should be able to be governed by it.

I define a malpractice disability as follows:—A disability or condition for which a practitioner is answerable is one in which a proximate, causative relationship exists between the negligence of the physician and the condition produced, without which a disturbance of function or change in the character, form or type of tissue would not have occurred as a natural and continuous sequence, unbroken by any controlling intervening cause, and which is recognizable and measurable by reasonable physical and laboratory means.

The question is, has something been done which ought not to have been done, or has something been omitted which ought not to have been omitted which is the proximate cause of the disaster? What was done or not done is a question of fact. What *ought* to have been done or not done is a matter of opinion. I want to emphasize the value of facts in the form of *written records* which show what was done and what was advised. The plaintiff will provide sufficient data about what was *not* done or not advised.

The conditions which furnish the majority of malpractice actions are obstetrics, fractures, surgical operations and x-ray burns. In each locality some general and accepted rules in the treatment of these classes of cases should be formulated as a guide in practice and as a legal protection to the profession. Authority for surgical procedures is often neglected. Many surgeons remove organs of controversial value without the consent of the patient. A third party (except in the case of minors), whether husband, wife or parent, unless delegated by the patient, has no legal authority to give the surgeon permission to remove any tissue. A patient can not by any legal means absolve the surgeon from negligence, before negligence has occurred.

What would be the reaction in the average man if he went to the operating room for an appendectomy and, when he regained consciousness, he was presented a small, atrophied appendix and two prized ovoid spheres which normally were ensconced near the appendix? Do you think the scientific record that at some time these organs harbored Neisser bacteria would compensate for their loss? And yet we would become greatly agitated were some embryo, incompetent or unscrupulous surgeon sued for malpractice for doing this same relative operation on a woman.

Secret Information

In practically every case, the petition and the outcome on a malpractice suit depend upon volunteered medical opinion. The assistance is invariably secret. Since time immemorial it has been the unwritten law of the profession that one physician shall not voluntarily testify against another in a malpractice suit. Of the two offenses, volunteering testimony and secret assistance, the latter is the more reprehensible; yet no organized effort has been made to prevent it.

In all the cases I have been connected with, assistance has been given the plaintiff, either knowingly, unknowingly or unwittingly. In one case information and testimony supplied to an attorney for the purpose of securing compensation under the Workmen's Compensation Law was used to file a malpractice suit against a physician who had previously treated the claimant. This opens up another avenue of danger to the medical profession. If this legal practice becomes general, physicians will do well to be very circumspect when mentioning any history involving the treatment rendered by another physician, when making reports of examinations of individuals who are sent to them to determine the degree of disability, otherwise they may be subpoenaed as witnesses for the plaintiff and find themselves in a very difficult situation.

The physician must observe a summons to appear in court. It is the duty of every

witness in court to answer truthfully questions of *fact*. The physician who obeys a summons and testifies to facts only should not be condemned nor ostracized for obeying the law, no matter to what extent his testimony may damage the physician involved.

It was Lord Coke who, centuries ago, told King James I that the King ought not be under any man, but under God and the law. So the medical profession need be subservient to no man but it must be under God and under the law.

But—there is a vast difference between compulsory appearance in court and voluntary effort to appear. And when in court there is a vast difference between testimony concerning fact and testimony concerning opinion. The physician can not avoid testifying to a fact but he can avoid volunteering to do so, and there is no law that can compel him to form an opinion. He may be compelled to disclose what he saw, what he found upon his examination, what he said and what he did and why he did it. These are facts and not opinions.

The weight of decisions sustains the rule that, where an expert witness is summoned, he need not give his opinion without compensation proportionate to the value of the opinion. How could a witness be compelled to engage in a process of reasoning if he did not want to do so

It does not follow that because a physician is a surgeon or specialist he is an expert medical witness. Wharton on Evidence, Section 434 says: "The distinction between expert witnesses is this: the non-expert witness testifies to conclusions which may be verified by the adjudication tribunal; the expert to conclusions which cannot be so verified. The non-expert gives the results of a process of reasoning familiar to everyday life; the expert gives the results of a process of reasoning which can be determined only by special scientists." To put this in simple language, the ordinary witness narrates facts from which conclusions are to be drawn: The expert assumes certain facts to exist and, from this assumption, arrives at a conclusion through a process of reasoning which is, as a matter of fact, an opinion.

Hospital Head Resigns

Dr. H. F. Spillers of Wheeling has recently resigned as president of the Hospital Association of West Virginia and the resignation has already gone into effect, according to a recent announcement from the Hospital Association officers. He has been succeeded by Dr. L. W. Lawson of Logan, who was elected at the Charleston meeting in December to serve through the year of 1929.

Dr. Spillers resigned his position as superintendent of the Ohio Valley General Hospital, Wheeling, several months ago and it is understood that he will enter a new field of endeavor in the near future, probably outside the state. Dr. Lawson has entered upon his new duties and it is understood that an active campaign for new members will be conducted after the first of July.

Mother India's Answer

A few months ago "Mother India," a book written by Miss Katherine Mayo, burst upon public notice and for a time occupied the center of the stage with the limelight of interest focused on it. Even today it is within the glare, though other more recent books have crowded it toward the edge of the spot and away from the center to which from time to time it returns. The author described a relatively brief visit in India, during which she accumulated an enormous amount of information which she presented in a vigorous, forceful and at least temporarily convincing style. She detailed conditions alleged to be widely prevalent in a manner that was conclusive to most of her readers, many of whom were fascinated, shocked, horrified and made indignant at the existence of a seemingly intolerable state of affairs that was an affront to civilization, portraying the people of great, though unfortunate India as almost beyond the pale in every question touching upon morality.

She wrote chapters of intense interest to physicians, sociologists and readers generally, describing terrifying conditions of child marriage, of child birth supervised by unspeakably filthy midwives, of suttee (the

burning of widows), of all but unbelievably widespread venereal disease, of universal sex debauchery and perversion, of brutality alike to women and animals. She wrote with dogmatic assurance of certainty that brooked no contradiction. The writer read part of her book and accepted it as probably based on gospel truth but after a time seemed to sense something unconvincing and savoring not a little of old-fashioned muckraking with perhaps a touch of fanaticism. Hundreds of thousands of Americans who read the book were indignant that such sordid conditions as described could exist but only rarely was the voice of the doubter and skeptic raised in faint protest of unbelief.

Now comes "A Son of Mother India Answers," in which Dhan Gopel Mukerji analyzes Mother India and convicts Miss Mayo out of her own scribenings of making unwarranted generalizations and distortions of the truth and, less convincingly, of propagandist tendencies. His arguments are in the main temperately worded and well balanced. He shows how she states as absolute fact much that is clearly but hearsay evidence, such as would not even momentarily be tolerated in a court of justice. He cites numerous extracts from her book in which she quotes anonymous authorities or those who have long since died. "In the entire book," notes Mukerji, "most of the serious charges were made by people who are dead or, if living, their names are not generally given." He invites Miss Mayo to print names and addresses, assuring her that she owes it to public decency to reveal the exact sources of her knowledge which otherwise he very properly thinks may be dismissed as untrustworthy.

In Mother India it is a fact that the author makes such vague and unconvincing allusions as that "trained American observers," "one of the most eminent living Indians," etc., have made certain observations, but in many cases she does not name her authorities. After reading Mukerji one feels that this book must be taken with more than a grain of salt. The author seems to be somewhat of a propagandist and an extremist who substitutes her own opinions and conclusions for exact fact. One is reminded of the extra-

ordinary enthusiasm which a few years ago was roused in reformers by the activities of various social hygiene societies, where the difficulty was, not to get information regarding social evil, but to state it temperately, prevent gross exaggerations and keep out personal and religious propaganda.

Those who read *Mother India*, accepting it as unalloyed truth, will do well to take the antidote prepared by Mukerji. The dose is small, a booklet of but one hundred pages with a short appendix, which can be read in an hour or two. But it is as potent as an alkaloidal pill, administered to overcome the effects of too much undigestible food. *Northwest Medicine* discusses this problem because Miss Mayo's book excited widespread interest among doctors. It contains much information that even Mukerji admits is based on fact but, if he is correct, it also presents unjustifiable exaggerations which will seriously harm the cause of India. Doctors should read both sides of the question.—*Northwest Medicine*.

Tumor Research

Further experiments conducted by Dr. J. W. Schereschewsky, surgeon United States Public Health Service, in tumor research and cure by means of high-frequency electric oscillations upon mice and fowls bearing tumors, have shown that "it is possible in a sufficient number of instances to be significant to produce complete recession of the tumor-bearing animal," according to a paper prepared by Dr. Schereschewsky, made public May 15. The full text of the conclusion of Dr. Schereschewsky's paper follows:

The conclusion seems justified that by exposing transplantable tumors of two strains (mouse sarcoma C. R. 180 and the Rous fowl sarcoma to the action of an intense electrostatic field excited by high-frequency oscillations of 68,000,000 to 66,000,000 cycles per second, it is possible in a sufficient number of instances to be significant, to produce complete recession of the tumor and consequent recovery of the tumor-bearing animal.

The method, in its present state of devel-

opment, has obvious limitations in subcutaneous growths which can readily be included between the plates of the treatment electrodes. Within these limitations, however, the action of the electrostatic field proved highly inimical to tumor growth and development, only 22, or 5.5 per cent, of 400 mice experimented with actually dying of tumor. With mice the problem was not so much the destruction of the tumor as to preserve the mouse free from intercurrent infections until complete recession and solid recovery had taken place.

The impression was derived that mice which had undergone treatment were, for a time at least, more susceptible than normal mice to certain bacterial infections, which brought about many more deaths than did the tumors. The treatment, too, when a certain dosage was exceeded, was able of itself to cause death. Also the lack of experience as to correct dosage, proper insulation of electrodes, and similar factors was responsible for a considerable mortality which in future experiments it should be possible to avoid.

Since stable and efficient apparatus for generating these high-frequency currents has been available to the laboratorian only for about four years or so, the action of these currents on living tissues has been but little investigated. Certainly, no previous data of practical value as to physiological action were available for guidance in the experiments here reported.

Even now we are evidently only on the threshold of the possibilities for investigation. Much remains for study, particularly with respect to the changes wrought in living cells by the application, in this particular way, of these currents. Studies along these lines are now under way and will be made the subject of future report.

The hypothesis that the frequency at which these currents are produced may have the specific quality of attacking certain cells more than others is interesting and worthy of future experimentation. Observations already collected suggest that this may be the case. The first paper published on the action of those currents, to which reference has been given, shows plainly that their

action at all frequencies is not the same but that pronounced differences exist.

In a small series of experiments a much higher frequency (135,000,000 cycles per second) than the one usually employed proved to be without particular effect on the tumor cells of the mouse sarcoma, while a preliminary study of sections of treated tumors removed immediately after exposure shows that normal tissue cells surrounding the tumor seem to be less attacked by the high-frequency currents than the tumor cells themselves.

So far as the possible therapeutic application of this method and these currents to human disease is concerned, a considerable period of observation and investigation is required before one would be justified in making such attempts, although one may hope that the results of animal experimentation foreshadow, albeit though dimly at present, results which may well be of practical utility.

Finally, it may be said that the results herewith reported distinctly encourage further investigation and study. The hope is expressed, too, that others will investigate this field with its many seeming possibilities and thereby increase the likelihood of recording observations which may be susceptible of practical application. — *U. S. Daily.*

John S. Offutt, M. D.

Dr. John S. Offutt of Capon Bridge, Hampshire county, died on April 1, 1928. He was born in 1863 and was a graduate of the University Medical School of Maryland and the College of Physicians and Surgeons of Maryland, receiving his credentials from the latter institution in 1897. Dr. Offutt was admitted to membership in the Grant-Hampshire-Hardy - Mineral Counties Medical Society in 1922 and had been a member in good standing since that time.

He died following a short illness at the age of 65 years and leaves a host of friends and associates in the Eastern Panhandle section of the state to mourn his death.

George F. Harvey

Mr. George F. Harvey, widely known manufacturer of pharmaceutical products, died at his Edge Hill residence, Philadelphia, on April 26, in his 85th year. Mr. Harvey was born at Woodbury, Vermont, on August 22, 1843 and after a number of earlier business ventures, he founded the National Drug Company of Philadelphia in 1900. He remained as president of that organization until his death.

The deceased is survived by his wife, Francelia Kimball Harvey of Edge Hill, and one daughter, Mrs. George H. Chittenden of Boston, Mass.

Public Debates*

A physician who is challenged to public debate with a faith healer, an antivivisectionist, an antivaccinationist or any similar antagonist should frankly recognize the dangers and unprofitableness of such debates. If he accepts the challenge, he may be mistaken by his professional associates and others for a seeker after cheap notoriety. He will probably find himself a butt for the ridicule of the faddists and cranks who usually make up the major part of the audiences that attend such debates. The atmosphere of the debate will not be favorable to convincing even one who has an open mind, and, if by chance any confirmed faddist or crank in the audience is susceptible to reason, the crowd psychology of the partisan gathering will tend strongly to prevent his changing his mind. Finally, newspaper reports will add nothing to the dignity and standing of the professional debater and as likely as not will be of no service to the cause of scientific medicine. They will probably describe the occasion as a mere travesty of truth seeking, which will usually be not far from correct.

No physician without the specific backing of his medical society for the particular debate in which he is to engage should enter into a public debate of any kind on any professional matter that faddists may undertake to make subject of controversy. A

* By William C. Woodward.

physician challenged to public debate, if he thinks the challenge worthy of any notice whatever, should bring the matter to the attention of his medical society and abide by its judgment. If the society determines that the proposed debate is expedient and wise and selects him as the one best able to represent professional medicine in the debate, he will appear on the debating platform with the prestige and backing of the organization and not as a possible seeker after publicity; if the society deems some one else more capable of representing the medical profession, he will escape what to the average physician must be a disagreeable duty. No matter whom the society selects, if it deems a debate proper, the society will look after the details of the arrangements and thus leave the debater opportunity to concentrate on the collection and preparation of material for the debate, which is a sufficient task to occupy fully the time of the average physician.

Unless a debate on any subject can be held under fair conditions, with definitions binding on the debaters so that words and phrases mean the same thing by whomever used, and with proper safeguards against packed audiences, it had better not be held, for under any other conditions a fair debate is not within the range even of remote possibility. The most that is likely to be accomplished by debates with faddists is to give prominence to the vaporings of a few faith healers, antivivisectionists, anti-vaccinationists or other cultists who are eager to bring before the public the cause they represent—and themselves.

Conservative Physiotherapy

Within recent years physiotherapy has become a recognized branch of medical practice. An increasing number of medical schools from year to year have added this to their teaching curricula. The recent American Medical Association report of hospitals showed a good proportion which have established physiotherapy departments. While the benefit from this form of therapy is recognized in suitable cases, there is danger of an excess of enthusiasm which

may employ it improperly. Familiarity with the principles involved and experience obtained from its practical application in condition of disease, combined with careful diagnosis of the cases to be treated, are essential for successful employment of this form of therapy.

One possibility of bringing into bad repute this form of practice lies in the excessive zeal of the manufacturer's agent who attempts to stampede the prospective purchaser of apparatus, inexperienced in its use and application, into the belief that his wares are essential for successful future practice. One of the most marked offenders along this line has been the representative of a large eastern manufacturing establishment, who is accustomed to select a compliant physician in a given city, whose office he equips with apparatus. The physician provides him with a list of prospective patients who in due time receive a letter, purporting to come from the manufacturer concerned, exploiting the therapeutic value of physiotherapy in general and his forms of apparatus in particular, accompanied by a pamphlet detailing the conditions of disease which it will alleviate or cure. The information is completed by the enclosure of the physician's card who is recommended as an expert in this line of practice. When in course of time the patient appears, thinking he is suffering from a suitable disease, he is referred for treatment to the physician's technician who proves to be the manufacturer's agent, serving the double purpose of treating the patient and instructing the doctor in the details of technic, thus helping to develop the latter as a specialist in this line of practice. By agreement the receipts are divided fifty-fifty between the physician and the account for apparatus. These details are cited from facts that are actually occurring as illustrative of methods which may be employed that are calculated to bring into disrepute a valuable method of practice. When employed in a conservative and ethical manner, however, it is to be commended for the relief of human suffering. It is recognized that the specialist is not evolved over night in any line of work but must develop as the result of careful

study and experience that follows only from sustained practical efforts. — *Northwest Medicine*.

Child Imagination

Guiding a child's imagination is one of the most important factors in keeping him normal and sane, psychologists at Colgate University concluded after an investigation of this phase of child life.

During the test, the psychologists sent questionnaires to the parents of hundreds of college students asking about their imaginations when they were children.

In many cases in which the parents had punished the child for seeing things that did not exist, the students were found to be emotionally unstable. The more stable they were, the more it was found that the imagination had been guided into useful channels, according to Russell Howard, who describes the experiment in *Hygeia* for May. For instance, it was found that one boy who used to make mounds of sand and see castles in them, was well on the way to being an architect.

The child who has a good imagination and then is allowed by his parents to use it to such an extent as to cause fear is also unstable. In this case the imagination must be directed into other fields. It must not be killed if the emotional balance of the person is to be kept normal.

Positions Open

The United States Civil Service Commission announces the following open competitive examinations: Associate zoologist, \$3,000 to \$3,600 per year; assistant zoologist, \$2,400 to \$3,000 per year. Applications for associate and assistant zoologists must be on file with the Civil Service Commission at Washington, D. C., not later than June 27. The examinations are to fill vacancies in the Bureau of Animal Industry, Department of Agriculture, for duty in Washington, D. C., or in the field, and in positions requiring similar qualifications.

The salaries are indicated above. For appointment in Washington, D. C., the en-

trance salary will be the minimum rate of the grade; appointments in the field service may be made at any rate within the salary range of the grade as indicated, varying with the conditions obtaining at the headquarters where the vacancy exists. A probationary period of six months is required; advancement after that depends upon individual efficiency, increased usefulness, and the occurrence of vacancies in higher positions.

The duties of associate zoologists are to conduct laboratory and field investigations on parasites of animals and on associated diseases, to develop control measures, and to prepare the results of such investigations for publication. The duties of assistant zoologists are to conduct research in the field of parasitology under general supervision. The work will include the collection and identification of specimens, investigation of life histories, and the development of control measures.

Competitors will be rated on their education and experience, and a thesis or publication to be filed with the application. Full information may be obtained from the United States Civil Service Commission at Washington, D. C., or the secretary of the United States Civil Service Board of Examiners at the post office or customhouse in any city.

David Hott, M. D.

Dr. David Hott of Morgantown died following a lingering illness in the Fitzsimons Hospital, Denver, Colorado, on May 20. Dr. Hott was 55 years of age at the time of his death. He graduated from the Physicians and Surgeons College of Baltimore in 1901 and was granted his license to practice in West Virginia at that time.

Dr. Hott was well known in the northern section of West Virginia, where he had been in active service for more than a quarter of a century. He affiliated with the Monongalia County Medical Society in 1909 and continued his membership in good standing until the time of his death.

Crime An Hereditary Problem

"In the municipal court of Chicago, where the courts are divided into specialized branches like the domestic relations court, the boys court, the morals court, it is whole families that supply the customers—the daughter in the morals court, the son in the boys' court, and the father in the domestic relations court, and he is not there only once, he is there continually"—so stated Dr. William J. Hickson, director of the psychopathic laboratory of the municipal court at Chicago. "Our courts are run by repeaters," he said. And he pointed out that the costs for taking care of one juvenile delinquent is twice the cost for one average Harvard student.

The criminal is a "primitive," Dr. Hickson explained. He is a primitive man, underdeveloped in a part of his brain structure.

This whole problem is a hereditary problem, Dr. Hickson explained. These poor defectives get that way because of heredity. "We shall have to do something to shut off this poisonous stream that is inundating the mental health of the population," he said. "Mental diseases can very easily be classified in but a few groups: Firstly, into intellectual defect, and, secondly, emotional defect. Among the intellectual defectives, we have, of course, the feeble-minded group. Then we have the parietic group, and the senile dementia group. In these groups, the cortex of the brain is primarily involved, the seat of the intellect. Consequently, we get defectives of judgment, of erudition, and other defects. But the technical insanities are on the emotional side; they are the dementia praecox group, the maniac-depressive group, and the epileptics. And all these three groups are due to defects of the basal ganglia; 90 per cent of the inmates of insane asylums are there because of this latter trouble. Perhaps 10 or 12 per cent are there because of intellectual defect. The feeble-minded are taken care of in special institutions.

"Our proposition is to get rid of these defectives, to isolate them in farm colonies,

to clean up this chain of human sewerage. If we can do that, we will save you from repetitions of the Hickman case, the Leopold-Loeb case, and all that long line of cases."—*Compend of Medicine and Surgery*.

The Horned Frog

(By C. H. Carter, M. D., Eastland, Texas)

At the laying of the cornerstone of the Eastland county court house in 1897, when the grand master of Masonic Lodges of Texas wielded the trowel which united the building into one common mass, he did not know that at the same time he was laying to rest with Masonic honors, for a period of thirty-one years, Rip Van Winkle, the world's most famous frog.

Nor did he know that in 1928, when the court house was to be torn down, that a number of the same Masons, assisted by others, would assemble around this stone again.

Upon approaching the stone the Masons all raised their heads and wondered if they would really find a frog. After prizing the cap rock and sheet of metal from the stone with a crow bar, or some other tool of metal, Rev. F. E. Singleton, 32nd degree Mason, exclaimed: "What is this?" Whereupon Eugene Day said that it was a horned frog, and added, "Let us hand it to Judge Pritchard." Mr. Day then took the frog by the friendly grip of a West Texas citizen and handed it to Judge Pritchard. Judge Pritchard recognized this frog as the same one that had been placed in the cornerstone in 1897. He then held the frog up before the multitude, who began to marvel, some believing and some not, and they will continue to do so until future generations shall find out the right.

The X-ray picture shows a fractured left ankle, for which Rip needs the services of an orthopedic surgeon. Anyone who knows of a charity hospital for crippled frogs please notify the State Secretary, Dr. Holman Taylor, at Fort Worth.—*Texas State Journal of Medicine*.

How to Make Use of the Best Elective Effect of Roentgen-Rays in Therapeutics

By DR. HANS HOLFELDER,
Frankfort-am-Main, Germany

Roentgen-rays being a physical drug with toxic as well as therapeutic values as any other drug stuff, their biological reaction in the tissue is bound to their absorption. The absorption of Roentgen-rays is controlled only by physical respectively optical laws and is beyond the action of the metabolism of the tissues themselves. The toxic effect of the Roentgen-rays, if skilfully limited to the diseased organ, can be of the greatest therapeutic value to our patients, but if administered without knowledge of their toxic qualities and without consideration for the other tissues of the body, we can expect from the Roentgen-ray nothing but injury to our patients. The distribution of the Roentgen-rays in the body tissues coming from a sharply limited Roentgen-ray cone is greatly influenced by the so-called disturbed rays and follows certain physical laws. In order to facilitate the administration of X-rays with the goal of the most elective effect, Doctor Holfelder has built his field selector with yellow colored patterns which show the distribution of the Roentgen energy in different X-ray cones in accordance with the true facts. The most important points to consider in order to get in each case the best elective effect of Roentgen-rays are, that the administration of the first and strongest part of the X-ray cone to the diseased area itself is of the greatest therapeutic value and that for doing so and for safeguarding all other tissues each case has to be treated individually, according to a carefully preconsidered plan, and that to make use of the strongest compression is of greater help to the patient than the race in voltages.—*International Clinics*, Dec. 1927.

Group Life Insurance

A new venture into the field of service was inaugurated at the Fairmont meeting when it was voted at the general session on May 23 to take up a group life insurance policy for the members of the association. This group insurance, which is now being worked out, will be optional with each member but will be conducted and operated by the association through the office of the executive secretary.

The limit placed upon each policy will be \$3,000 and the cost will be in the neighborhood of \$10 per thousand, depending upon the average age of the members making application for the insurance. The age limit has been placed at 60 years, although members of the association who are between the ages of 60 and 65 will be permitted to participate in the group policy rating in a smaller amount.

Within the next two or three weeks, questionnaires will be sent out to the members of the association explaining the group policy in detail. All members interested should fill in these questionnaires and mail them to the executive secretary at once. After the group is once made up, it will be necessary to wait until the beginning of the next fiscal year before any other members will be allowed to participate. It is understood that a considerable saving in life insurance will be made by each participant. Just what this saving will be will be set forth in the questionnaire now being compiled.

Mental Hygiene Course

It has been recently announced that a six week's course in mental hygiene will begin at Duke University, Durham, N. C. on June 11, 1928, which will be open to students of medicine, physicians, clergymen and teachers, as well as laymen dealing with the young. The course, which will be conducted by Dr. Tom A. Williams of Washington, D. C., will be completed on July 21.

Amoebic Dysentary

A laboratory method of discovering infections of the parasite causing amoebic dysentary, common in southern United States, is being evolved by the Medical Department of the Army, according to an announcement by the Department of War on May 1, which follows in full text:

Another accomplishment of the Medical Department of the Army has been revealed by Lieut. Col. Charles F. Craig, Medical Corps, U. S. Army. It is a clinical method to discover infections of the parasite of *Endamoeba histolytica* in the human system. This is the parasite causing amoebic dysentary, common not only in the tropics but throughout the southern portion of the United States.

The discovery is a laboratory method or test to diagnose with considerable accuracy whether or not the individual is infected with the parasite. It is not a cure. However, when the technique is fully developed the use of the test will tell practicing physicians whether there is present an amoebic condition of danger to their patient.

Experimental work, Colonel Craig has revealed, disclosed that there occur in the blood serum of individuals infected with *Endamoeba histolytica* specific immune substances which can be demonstrated by complement fixation when alcoholic extracts of cultures of this parasite are employed as antigens. Positive complement fixation reactions occur with these antigens in cases of individuals suffering from symptoms of infection with *Endamoeba histolytica* and also in those cases where symptoms are absent by reason that the individual is a so-called "healthy" carrier of the parasite.—*U. S. Daily.*

Infant Mortality in W. Va.

Some interesting figures have recently been released by the bureau of vital statistics of the state health department in regard to births in West Virginia during 1927. According to the figures compiled

by the bureau, there were 44,857 babies born in this state during the past year with doctors officiating at 91.6 percent of the births and midwives at 8.4 percent. In connection with the above, the infant mortality dropped from 81.1 for every 1,000 living births to 71.9.

The report of the bureau of vital statistics points out that infant mortality in West Virginia is now two points below the average for the United States, which is 73 per 1,000 living births. There were 1,715 still births in this state during 1927. The total births exceeded the total deaths by 27,867. The reasons assigned by the department of health for the reduction in infant mortality are better care of the mother and baby before and after birth, better instruction on diet, improved sanitary conditions and a better milk supply.

The four principal causes of deaths among children under two years of age were diarrhea, bronchial pneumonia, whooping cough and malformations. Typhoid fever, tuberculosis and lobular pneumonia were the principal cause of death in the age group from 6 to 19 years.

Training Doctors

For decades the progress of medical research has demanded more and better laboratories for biology, biochemistry, physiology, bacteriology, and pathology; elaborate installations for X-ray and radium therapy and for treatments by machines, baths, and artificial sunlight; as well as operating facilities of many kinds. Hospitals with patients in beds are no longer sufficient for studying diseases and teaching students. There must be out-patient clinics for the sick who are able to get about, and even health centers for well persons. In addition to all these requisites the public health leaders are clamoring for the teaching of prevention seriously and to some purpose.

The Rockefeller Foundation responds to invitations from certain types of medical schools which seek aid in carrying out various plans for improving their buildings,

equipment, organization, teaching, and research. During 1927 the following institutions were assisted: the College of Medicine of the State University of Iowa; the Faculty of Medicine of the University of Montreal; the National School of Medicine and Pharmacy, Haiti; the Faculty of Medicine of Sao Paulo, Brazil; Faculty of Medical Sciences, University College, London; London Hospital Medical School; the Faculty of Medicine, University of Cambridge; the Faculty of Medicine, University of Edinburgh; the Faculty of Medicine, University of Lyon; the Faculty of Medicine of the Free University of Brussels; the Faculty of Medicine, University of Strasbourg; twenty departments in twelve French and Italian medical schools; the Institute of Psychiatric Research, Munich; the University of Zagreb; the Medical School of the American University in Beirut; the Medical School of Chulalongkorn University, Bangkok; Shantung Christian University Medical School, Tsinan; Shanghai Union Medical School; Hsiangya Medical College, Changsha; and Keio University College of Medicine, Tokyo.

Propaganda for Reform

Grapefruit As a "Patent Medicine."—In October, 1927, the *Journal of the Michigan State Medical Society* printed an utterly preposterous article entitled "The Therapeutic Value of Hill Grown Grapefruit." Inadvertently, an abstract of this appeared in the *Journal of the American Medical Association*. There is not the slightest scientific evidence that any kind of grapefruit has any curative virtues in diabetes. The article mentioned vaunts the alleged potency of a special brand of grapefruit; it refers to the case of a Dr. Roy who has been exploiting himself in this connection for several years and now, apparently, it has led to a real estate promotion and to the foundation of a sanatorium company by the Michigan physician.—*Jour. A. M. A.*, March 3, 1928.

The Tuberclecide Fraud.—Charles F. Aycock, "Consumption Cure" faker, has been debarred from the mails. He has for years sold a fraudulent "cure" for consumption called "Tuberclecide." This nostrum was exposed seventeen years ago; at that time tuberclecide sold at \$15 for a two-ounce bottle and was found by the A. M. A. Chemical Laboratory to be essentially a solution of creosote, or guaiacol, in olive oil. Eleven years ago, he was prosecuted in California, but the case was dismissed. Since then, Aycock has continued to defraud the tuberculous public, until finally the postal authorities have proceeded against him for fraudulent use of the United States mails. About January 1, 1928, a fraud order was issued against the Aycock Medical Institute, Aycock Medicine Company, Aycock Medical Company and Charles F. Aycock. There is reason to believe, however, that Aycock is evading the order by doing business under the name "Tuberclecide Institute," 402 Delta building, Los Angeles, California.—*Jour. A. M. A.*, March 3, 1928.

Barbital Addiction.—The wide use of hypnotic preparations by the public has brought new problems for solution. When a single practitioner can report a hundred cases of acute poisoning or chronic addiction with one of the newer hypnotic drugs, the situation is serious. Barbital, introduced as veronal, has an increasing lay popularity for self administration. Its habit-forming propensities are sufficiently well recognized to merit the special designation of barbitalism or veronalism. A host of proprietary hypnotics now on the market may induce in greater or less degree the same result. Addiction to barbital appears not to stop with the production of moderate euphoria. Judgment, orientation as to time, and insight are probably the most severely harmed of the psychic faculties and are the last to clear up in convalescence. The "safe" hypnotics may become menacing to the public welfare.—*Jour. A. M. A.*, March 10, 1928.

WOMAN'S AUXILIARY

The Fairmont Meeting

The fourth annual meeting of the Woman's Auxiliary of the West Virginia State Medical Association was a marked success in every sense of the word, according to the opinion of the large number of members who turned out for the occasion. While the complete minutes of the Fairmont session will be published in the July number of *The Journal* a brief outline of the program and activities is given below.

The meeting was called to order by Mrs. B. S. Preston of Charleston, president, and the address of welcome was given by Mrs. L. D. Howard of Fairmont. The response was made by Mrs. Albert H. Hoge of Bluefield. At 11 o'clock on the opening morning of May 22, an address was made by Mrs. A. T. McCormick of Louisville, Ky., president of the Auxiliary of the Southern Medical Association.

An educational program dealing with membership and organization was put on during the afternoon, at which time a round table discussion was led by Mrs. T. M. Barber of Charleston, state editor, and Mrs. J. P. Lilly of Morgantown, state *Hygeia* chairman. A joint meeting with the West Virginia State Medical Association was held the same evening.

The business meeting was held at 10 o'clock on the morning of May 23, after which greetings were extended by Mrs. C. H. Smith, president of the Woman's Auxiliary of Pennsylvania. At 10:40 o'clock, Miss Marion Bell, public health nurse of Marion county, put on a health demonstration which was followed by an address by Dr. Valeria Parker of New York City, president of the American Social Hygiene Association. Her subject was "The Task of Social Hygiene." The executive board meeting on the morning of May 24 concluded the program.

Kanawha County

The April meeting of the Woman's Auxiliary to the Kanawha Medical Society was held the evening of April 17 at the home of the president, Mrs. M. I. Mendeloff. About thirty-five members were present. Delegates to the state meeting were elected. A committee is to be appointed to consider a benefit bridge and tea. Following the business meeting a musical program was given by Miss Mary Ann Dunn, Mrs. W. P. Black, accompanied by Mrs. Spradling, and Mrs. R. E. O'Connor accompanied by Mrs. Victor Knopp. An original poem by Mrs. A. A. Shawkey was read by Mrs. J. B. Houston. The program was arranged by Mrs. A. C. Lambert of the program committee. All those who took part in the program were either the wives or daughters of doctors.

Monongalia County

The Woman's Auxiliary of the Monongalia County Medical Society met at the home of Mrs. J. P. Lilly in Morgantown on February 20, 1928. The following officers were elected for the coming year: Mrs. J. P. Lilly, president; Mrs. M. H. Brown, first vice president; Mrs. Brinley John, second vice president; Mrs. H. V. King, recording secretary; Mrs. E. R. Taylor, corresponding secretary, and Mrs. L. W. Cobun, treasurer.

This was a very interesting meeting and a good attendance turned out. The Monongalia Auxiliary society has 25 members and only two delinquents. The Auxiliary recently purchased a number of articles for the nursery at the County hospital and is contemplating further expenditures in the near future.

MRS. E. R. TAYLOR,
Corresponding Secretary.

The West Virginia Medical Journal

Directed and Edited by the Committee on Publication

[The Committee on Publication is not responsible for the authenticity of opinion or statements made by authors or in communications submitted to this Journal for publication. The author or communicant shall be held entirely responsible]

JAMES R. BLOSS, *Editor-in-Chief* - - - - - Huntington

ASSOCIATE EDITORS:

WALTER E. VEST
Huntington

HARRY M. HALL
Wheeling

J. HOWARD ANDERSON
Marytown

C. A. RAY
Charleston

MR. JOE W. SAVAGE, *Secretary-Business Manager*, Charleston

Entered as Second Class Matter, January 1, 1926, at the Postoffice at Charleston, West Virginia

Volume XXIV

JULY 1928

Number 7

THE TREATMENT OF OSTOEMYELITIS BY DRAINAGE AND REST

By H. WINNETT ORR, M.D.
Lincoln, Nebraska.

GENTLEMEN: I think that we all realize what a tremendous contribution Sir Joseph Lister made to the practice of surgery. He not only thought out but worked out an application to surgery of the marvelous discoveries of Pasteur, and showed us the way to the prevention and the control of surgical infection; thousands of lives and limbs have been saved by a successful application of his teachings.

Many of us have read about and know something of the conditions that prevailed in hospitals, operating theaters and homes in the pre-Listerian days. We are aware that erysipelas, septicemia, and gangrene—the common accompaniments of compound fractures at that time have largely disappeared as surgical complications. But one thing we do not realize. That is that upon the methods of Lister himself in the treatment of compound fractures we have not only not improved but that on the whole our results are scarcely as good as those obtained by Lister himself.

It requires a good deal of fortitude for me to stand before you and suggest that we have not been treating our compound fractures properly for the past forty or fifty years. Yet I believe that is a correct statement of the case. Moreover, I should not make such an assertion—sparing my own feelings as well as yours—except for the fact that I feel that I have arrived at a method—based upon the teachings of Lister and upon other fundamental surgical principles, that is better for the patient and better for us than that which we have been using.

In my various journeyings of the past ten years I have found many surgeons who are satisfied with their methods and results in the treatment of compound fractures. But I should say that, fortunately, most surgeons are not satisfied with present methods in the conduct of such cases. Very few of us, however, have realized just how bad our results are in patients having bone injuries and bone infections. A large majority of these patients are turned over by the surgeon to his assistants or to his associates; these latter—comparatively voiceless in the medical litera-

*Read before the Central Tri-State Medical Society at Huntington, W. Va., April 19, 1928.

ture,—are the only ones who know how many deformed and disabled there are on account of non-union, mal-union and chronic infection. Such patients, as a rule, leave the original hospital or surgeon before recovery; often, still one hundred percent disabled, they drift from place to place, not checked up or even remembered by the original institution or professional attendant.

Upon first thought you may say that this is a greatly exaggerated statement of the situation. Now, if never before, we may bring forward figures to indicate that such an estimate at least approximates the truth.

During the Great War we had some sixteen thousand compound fractures. We have accurate information as to the nature of the injury, the kind of treatment and the results. And the results were pretty bad. I shall base my comments in this paper chiefly upon statistics regarding fractures of the femur. These injuries are difficult to treat but if we learn to treat fractures of the femur successfully I think we may be trusted to treat fractures in other regions. And I think I may also say, conversely, not otherwise.

What were our results in fractures of the femur in the Great War? From the Surgeon General's report (vol. XI. Part I, p. 546) one may gather the following figures. In one series of cases of fracture of the femur, of 3,352 cases studied, eighteen months after injury 1735 cases had less than 50% disability; 1616 cases had more than 50% disability; 955 cases had 100% disability; of the same cases three years after injury, 1806 cases were less than 50% disabled; 1546 cases were more than 50% disabled; of these latter 282 had still 100% disability.

After eight years 1841 cases were less than 50% disabled; 1511 cases were more than 50% disabled.

In another series of cases of fractures of the femur from all causes the disability in those observed for no definite period but at the time of first and last examination (up to 1926) showed that of 5,138 cases 2,669 were less than 50% disabled at the time of last examination, while 2,469 were more than 50% disabled and of these 789 were more than 80% disabled.

To epitomize about one-half of all the above cases were more than fifty percent disabled at the end of three years treatment. About twenty percent of all cases were one hundred percent disabled after three years; (even after eight years there were more than one-half of all cases at least fifty percent disabled.) Those are not good results—at any rate, not good enough. And our results even in good hospitals are little, if any better, than that at the present time. Since the war time, however, we do not check up our hospitals very carefully and do not know just what our results really are.

Theoretically a compound fracture calls for the application of the same methods of treatment as a simple fracture, that is to say, reposition of the fragments and immobilization during the entire period of treatment. If the wound is given first consideration as has been customary, it is quite obvious that this program cannot be carried out. In fact such a program for compound fractures has usually not been carried out. In actual practice very few compound fractures are treated in anything like an ideal manner from the standpoint of the fracture. Supposed requirements of wound treatment,—drainage tubes, sutures, taking out sutures (on account of infection), taking out drainage tubes, irrigations, wet antiseptic packs, etc. have, as a rule, entirely destroyed any fracture treatment for these cases.

I shall always remember the impression made upon me when I arrived at the military hospitals in England in 1917. Every hospital was in chaos over the problem of surgical dressings; mornings and afternoons were given over to the removal and application of antiseptic dressings of all kinds. Compound fractures as fractures were almost disregarded to make way for all kinds and conditions of antiseptic treatment. Even the splinting which was supposed to have greatly improved at that stage of the war was still almost entirely inefficient (and is now) because of these antiseptic methods. Heroic attempts were being made to improve traction and immobilization by means of skeletal devices, ice tongs, pins, etc., but even these were rendered relatively inefficient because splints were left

off or open, bandages were loose and weight traction was being depended upon, all so that dressings might be done. Most of the complications that arose in the attempts to use ice tongs and pins were due to the fact that immobilization of the fracture, of the skeletal devices, and of the limb as a whole were still inadequate.

It was out of the lessons of this experience that the methods that I shall describe were evolved. It is our firm belief that real fixed traction and real immobilization with or without ice tongs and pins and a no dressing technique should be employed.

I have felt for some years that we have been misled in regard to what are called the surgical lessons of the war. The two outstanding innovations during and just following the war were the Carrel-Dakin method of wound treatment and the Willems mobilization method in joint infections and injuries. Just listen for a moment to the comments of their enthusiastic advocates.

*"If the articular wound is complicated by infection in addition to fracture, mobilization is still more strongly indicated as it alone can give drainage, which is not perfect by reason of necessary limitation of the movements, but in all cases superior to that accompanying immobilization. Osteosynthesis (direct fixation of the fracture) in the midst of infection may facilitate the movements, but the plates will have to be removed secondarily.

"With a fractured knee it is evident that it is not a question of having the patient walk immediately, but mobilization in bed is possible, especially if one adds thereto a continuous extension which furnishes a *certain fixation** (italics by the present writer) to the fragments, as well as a point of application for muscular action. This mixed method of treatment of articular wounds complicated by major fractures, by extension combined with active movements, gives functional results far superior to those obtained by other methods."

The "certain fixation" referred to by Col. Willems above has always been very "uncertain" in the hands of those that I have seen attempting to employ the mobilization method. Any "mobilization" method based

upon the idea that motion is necessary as an adjunct to drainage usually has a large function to perform. That is to say, drainage is usually very profuse. There is as a rule excessive drainage not only because of the irritation caused by moving such parts but also because the removal and disturbance of splints and dressings affords an opportunity for additional and secondary infection—and such infection usually supervenes.

To teach, as Willems has done,* that a compound fracture of the femur into the knee joint, with loss of one-third or more of a femoral condyle may be treated by early and frequent motion of any kind is to teach a method that results in many cases or most, in loss of position of fragments, in secondary infection, delayed healing, certain deformity and more rather than less ultimate disability.

It is certainly a fact that primary debridement, immobilization in correct position and protection against infection will render drainage unnecessary, will induce earlier healing without deformity and consequent diminution of disability.

In an article by Dr. George Miel of Denver in 1923 entitled "Join Injuries with Special Regard to Fractures Extending into the Joints" he comments upon the remarks of Dr. C. E. Tennant (Colo. Medical Journal, 1921) as follows:

In beginning Dr. Tennant said: One of the most notable advances made in surgery and one which can justly be credited to the World War, is the care of fractures in and about the joint, be these fractures simple or compound.

To meet this new demand our profession must discard many of the traditional teachings of the past two decades and turn to the promising results secured by the later methods of treatment, the requirements of which may best be summed up in the phrase first used by Willems, "Immediate voluntary active mobilization."

Dr. McWilliams has been even more emphatic in his demand for the general adoption of the mobilization of injured and infected joints. He says: "It is the duty of our Medical Schools to see the Willems method is thoroughly taught as the one

standard of treatment to follow in Knee Joint Injuries. The old haphazard immobilization procedure should be relegated to the scrap heap as harmful, except in well indicated cases thereby saving lives, limbs, and function."

Dr. Joseph Blake whose war experience was very extensive has also advocated more motion for fractures. All this has led to great confusion and much neglect of these cases. Dr. Blake says "The war has undoubtedly brought about a complete change in our ideas as to the treatment of fractures. The change came slowly and by a process of evolution. At first we were actually unaware as to what and where our changes in the customary treatment were leading us. Later, when a true conception of what we were arriving at dawned upon us and we deliberately discarded the older principles, we were able to make greater and more satisfactory progress."

"Our experience during and since the war has convinced us that immobilization is not only unnecessary but actually prejudicial in the treatment of both gunshot and of many simple fractures.

"The first real inkling we received that *immobilization of the fragments was unnecessary** (italics by the present writer) was in 1914 in two cases of fracture of the humerus which were suspended in order to combat an enormous swelling of the forearm and hand. Although traction was imperfectly applied to these cases they united in good position in what seemed to us an incredibly short time. This led to the general use of the suspension and traction treatment for fractures of the humerus, without the use of any splint for fixation and I believe the results of this treatment are unparalleled by those of any other."*

Now, that may have been the sort of thing that some of our associates learned from the war—but the lessons of the surgical side were different for others.

"Finally full emphasis must be laid on the paramount necessity for the complete immobilization of wounded parts at all times and on all occasions. So will one of the most powerful agencies making for infection and

auto inoculation be kept in check." (Moynihan.)

The principle of immobilization for injured parts is a fundamental feature of the writings of Hunter, Hilton, Hugh Owen Thomas and others. Unfortunately, it is only from Thomas that we have inherited anything like efficient devices for complying with this principle. One of the lessons of the Great War was that most of the splints in common use served perhaps to handicap the patient's movements to some extent but to immobilize very little or not at all. Splinting in nearly all cases, moreover, was made secondary to wound treatment and splints were disturbed (and are being today) upon the slightest provocation for wound treatment. My experience during the war and since has been the same as that of Osgood. "Plaster of Paris dressings with wide openings* bridged by hoops of metal or plaster offer the most perfect fixation and greatest comfort to the patient. These are employed in specially difficult and painful cases. Their disadvantages in an English general evacuating hospital, where there are often periods of great rush, are their time consuming initial application and the practical certainty *that they will be removed when they reach the home hospital.*1*

Dr. Miel in his article on Fractures involving joints makes the following quotations from and comments upon an article by the present writer in 1922:

"The matter is digested and summed up under 'The Fundamental Principles of Orthopedic Reconstruction and Industrial Surgery.' The Real Lessons of the World War", by Dr. H. Winnett Orr, of Lincoln, Nebraska; Chairman's address, read before the Section of Orthopedic Surgery at the Seventy-Third Annual Session of the American Medical Association, St. Louis, May, 1922:

"First Principles: Our Surgeon General has said recently that the surgery of the war consisted chiefly in 'harking back to first principles.' This comment may or may not do justice to our two years of effort in the military service. One might say that, if we really had successfully 'harked back' to first principles, we might feel fairly well satisfied with the achievement. After all, compliance

with first principles is one of the things that surgeons have not done too well.

"My principal point, however, from the standpoint of an orthopedic surgeon, is that neither the Carrel-Dakin method or any other kind of wound treatment should be permitted to interfere seriously with fundamental principles in the treatment of bone and joint injuries. Those principles are, first, the immediate replacement, as nearly as possible, of injured parts in anatomical relationship, and second the maintenance of immobilization (enforced, uninterrupted, and prolonged"—Hugh Owen Thomas) of such injured parts in proper relationship until healing occurs.

"In other words, wound treatment of whatever kind must not interfere with splinting in correct position. In the application of the Carrel-Dakin method, the disturbance of splints and the discarding of casts has been very common. It is my belief that splinting should come first in compound injuries, just as it should in infantile paralysis. My attitude with regard to the Carrel-Dakin or any other forms of wound treatment (except drainage) in compound injuries is exactly the same; that is, they are secondary to correct splinting.

"This argument also brings up the old question as to splinting and stiff joints. To this my answer is that stiffness, whether of the joint itself or of the adjacent soft parts, is due not to immobilization but to pathological changes. Such changes are always due to irritation, inflammation, tissue destruction and scar formation. All of these are kept at a minimum, not by movement but by rest. The minor stiffness that is inevitable to the minor injury can be broken up after healing occurs. The more serious stiffness that results from more serious injury cannot be broken up either at the time by force splinting or by force later on."

In commenting upon the above Dr. Miel says "Now to me the matter of dealing with a simple fracture is entirely foreign to suggestion of immediate active mobilization. (In compound fracture still more so. Author.) My ideas are very much in accord with Dr. Orr's so that with the highest regard for Dr. Tennant, I differ with him."

To sum up then, it is our observation that present methods of treatment for compound fractures are defective in the following respects: First, primary attention to the wound takes precedence over immediate reposition of the fracture fragments in correct position. Second, splinting in correct position for a fracture is made subservient to wound treatment or is disregarded all together. Third, primary operation consists in many cases of partial closure with the insertion of a tube whereas wide open drainage usually without suture and without tubes should be the rule. Fourth, secondary antiseptic treatment (which we now consider unnecessary) is made the occasion for daily or more frequent dressings which delay rather than promote healing in ordinary practice and which invariably lead to secondary mixed infection.

Facing these difficulties we have worked out a method which aims to provide, first, immediate replacement of the injured parts in correct position, second; maintenance of that position by application of a plaster of Paris cast employing ice tongs or other methods of skeletal fixation if necessary, third; wide open drainage by means of sterile vaselin pack, fourth; non employment of irritating antiseptics in the wound, fifth; no dressings with antiseptics, so that there may be protection of the wound against secondary infection, and finally, maintenance of all the injured parts, bony and soft, in correct position during the entire period of healing. The exact manner of employing this method is demonstrated by the lantern slides and must be worked out by every surgeon if he is going to avoid the difficulties that have been enumerated and described.

Finally, it is possible to say that over a period of five years now this newer and better method has been employed. Results quite impossible with ordinary methods have been obtained and have been obtained regularly. Not only here but in the hands of various competent surgeons in other parts of the country similar results have also been reported in rapidly increasing numbers. I am permitted to cite such well known and reputable surgeons as Dr. Steindler of Iowa City, Dr. Gaenslen of Milwaukee, Dr. Ellis Jones

of Los Angeles, Dr. Wilcox and Dr. Geist of Minneapolis, Dr. Kreuscher and Dr. Thomas of Chicago, Dr. Eikenbary of Seattle, Dr. Rich of Tacoma, Dr. Albee, Dr. Leo Mayer, Dr. Kleinberg and Dr. Weigel of New York City, Dr. Osgood of Boston, and numerous others who have employed this method with satisfactory results. No unusual difficulties or complications have been reported from any source and it is confidently hoped that the method will be adopted by surgeons everywhere with increasing confidence and with rapid improvement in methods of application and technique.

For the patient the simpler after care is a God-send; daily difficult and painful dressings are rendered unnecessary. For the hospital there is a tremendous economy in time, labor and dressing material, and finally for the surgeon himself and his asso-

ciates, the care of such cases becomes a simple, satisfactory experience instead of the nightmare that it has been heretofore. In other words the method of treatment of these conditions by drainage and rest not only eliminates much suffering, labor and expense but it is actually better from the standpoint of the conduct of the case and the results obtained.

* Willems, Ch., M. D., The Indications for Active Immediate Mobilization in the Treatment of Joint Injuries. *Annals of Surgery* Vol. LXXII, Oct., 1920, No. 4.

* Same article as above.

* McWilliams, Clarence, M. D., The Willems Treatment of Knee Joint War Injuries. *Annals of Surgery*, LXX (Sept., 1919) No. 3, p. 257.

* Blake, Joseph A., M. D., The Application of the Methods Developed During the War to the Treatment of Fractures in Civil Life., *N. Y. State Jour. of Med.* Vol. XX (Nov., 1920) No. 11, p. 857.

* Except that we do not now leave windows for dressings (author).

* I. Osgood, R. B., M. D., *Am. Jour. Orthop. Surg.* XV, 1917, p. 668.

OBSERVATIONS ON THE GALL BLADDER PROBLEM

W. S. FULTON, M. D.

From the Surgical Division Wheeling Clinic,
Wheeling, W. Va.

INTRODUCTION: It is with considerable hesitation that one essays to discuss any phase of the diseases which affect the gall-bladder. In view of the enormous accumulation of literature on this subject one would be inclined to feel that by this time many of the problems have been clarified and most of the controversy settled. On the contrary, just the opposite is the case. As we have often stated, gall-bladder surgery is a black spot on the operative surgical horizon. In the course of the last five years a few facts have so impressed themselves upon me that I feel that it may not be out of order to review some of the points which seem to have rather definitely established themselves.

Diagnosis of Gall-Bladder Disease: The diagnostic ability of the medical man, be he internist or surgeon, is being tested in the present era as it never has been tested before. As Bloodgood and others have pointed out, we no longer see patients with lesions in such an advanced stage that the diagnosis can be

made across the room. Due to the admirable publicity which has been brought into play, we all realize how much earlier the majority of patients now consult their physicians. While the ultimate result for the patient, if he is properly handled, is immeasurably better, yet at the same time the astuteness of the diagnostician is often taxed to the utmost. I well remember, as a third-year medical student, the remark of one of my clinical instructors, "Gentlemen: You have mastered the intricate subjects of anatomy, physiology, pathology, and bacteriology. I now present to you a fat woman with a pain in her side." The fat woman with the pain in her side still continues to be a stumbling block to me and I suppose a few of my colleagues.

I am still old-fashioned enough to believe that a thorough and pains-taking history is the firmest foundation for diagnosis of the lesions of the gastro-intestinal tract. This history should include not only what the patient remembers to tell you about his trouble but also should include a close questioning as

* Read before the Sixtieth Annual Meeting at White Sulphur Springs on June 22, 1927.

to the presence or absence of all the symptoms which we know to be induced by these disorders. In the diagnosis of chronic cholecystitis I think the most prominent symptoms usually are those of indigestion,—a feeling of fullness, belching, and epigastric gastric distress. Frequently there is a story of crises in this symptom complex. By crises I mean attack of so-called biliousness in which the indigestion becomes nausea and vomiting, the epigastric distress becomes a severe grinding pain, and the patient has sensations of chilliness followed by fever. It seems to me that these attacks are most frequent following the ingestion of a very large meal or one containing certain foods which are hard to digest, such as raw apples, cabbage, or greasy foods.

There is one other point in differential diagnosis that has often been overlooked; namely, the confusion of cardiac pain with gall-bladder pain. If the possibility of coronary occlusion is borne in mind, it can usually be ruled out, although, as Pearre has very aptly pointed out, it is indeed fortunate that the gall-bladder is located on the right side of the body, for if it was situated on the left, the necessity of distinguishing biliary colic from angina pectoris would often present a very difficult problem.

The development of cholecystography in the last few years has provided us with a method of precision which has rarely been equaled in clinical medicine. It has been said that this is only one more step toward the mechanization of medicine. The argument is invalid. One might as well say the same in regard to the substitution of an accurate blood pressure reading in place of a guess at the pressure by palpation of the pulse. We have found that a combination of cholecystograph and visualization of the gastro-intestinal tract by the usual means is very valuable. We have thus been able to explain many queer abnormalities or distortions of either the gall-bladder or the duodenal cap. I will not attempt to go far into the details of the technic of cholecystography with which most of you are familiar. I may say that when we began this work at the Wheeling Clinic we used the oral method for the administration of the dye. This

method has value but it is secondary to the intravenous method which we now use in 95% of our cases. We feel that the discomfort of the patient is much less when the intravenous method is employed than when the capsules are given by mouth. We have been very particular in regard to our technic and feel that the observance of the following points has led to satisfactory results and a minimum of reactions:

- (1) High dilution of the dye.
- (2) Moderate dosage.
- (3) Administration by gravity method.

We have not felt it advisable to attempt to make any fine-spun diagnoses from cholecystography. The Roentgenologist reports as follows:

- (1) Normal gall-bladder.
- (2) Pathological gall-bladder.
- (3) Cholelithiasis.

In our last series of approximately one hundred cases no one which has come to operation has failed to justify the diagnosis of pathological gall-bladder. We wish to emphasize, however, that a mere shadow phenomenon should not form the sole basis for clinical judgment. Indeed, it is possible that much ill-considered surgery will follow the wide-spread use of this excellent new diagnostic method. The method has become as firmly a part of general surgery as pyelography in urological surgery and in our opinion provides an equal amount of accurate information.

We have not felt that the examination of the gall-bladder bile, as obtained by duodenal drainage, has given us much information, at least from a surgical standpoint. Our knowledge of the physiology and bio-chemistry of the biliary system is still so imperfect that it is difficult to properly evaluate such findings as increased consistency, viscosity, the presence or absence of mucus, the presence or absence of crystals, and the presence or absence of pus cells. No one has yet been able to state just what constitutes normal gall-bladder bile and what is the upper limit of normal for each of the above substances.

I may mention the laboratory procedures in the diagnosis of biliary disease but only by way of dismissing them from any great consideration. Gastric analysis may give

accessory information but is seldom of value. Other determinations such as the icterus index and Van den Bergh reaction may be helpful. By means of the icterus index we have been able to demonstrate a latent jaundice in patients in whom there was no tinting of the skin or sclera. This finding usually precedes the increase of urobilinogen in the urine, and it has been helpful at various times in making a final diagnosis. We rate the different factors in diagnosis in the following order of importance:

- (1) History.
- (2) Cholecystography.
- (3) Cholecystography plus gastro-intestinal X-Ray.
- (4) Physical examination.
- (5) Laboratory procedures.

Surgical Aspects. We have just emerged from the era of discussion and controversy in regard to relative merits of cholecystectomy versus cholecystostomy. Few surgeons can now be found who will contend that cholecystostomy is indicated as other than an emergency procedure. We are inclined to reserve this operation for the very aged or for those suffering from toxic or hazardous diseases, such as chronic or acute pancreatitis or acutely inflamed and gangrenous gall-bladders that can only be removed with great difficulty and considerable risk to the patient. It should be remembered that after cholecystostomy the gall-bladder becomes fixed by adhesions and the mere absence of symptoms is no indication that it is functioning. This conclusion which we have arrived at from clinical evidence has recently been amply confirmed by the work of Waltman Walters, published in the April 1926 issue of *Surgery, Gynecology and Obstetrics*. This author has shown conclusively by the use of cholecystography just how little benefit is achieved and how much damage may be done by the procedure of cholecystostomy.

We are now entering upon a new discussion which may well develop into controversy; namely, the indications for surgery in gall-bladder disease. It has been stated by some that the gall-bladder should be regarded in the same light as the appendix and that the indications for removal should be even more sharply drawn than in appendiceal surgery.

Acute suppurative cholecystitis is of fairly infrequent occurrence and if only such gall-bladders were removed, there would be a very sudden and probably unwarranted decrease in gall-bladder surgery. The actual degree of harm which may be done to the body economy by removal of the gall-bladder is in doubt. It is quite possible that we may be doing some harm by removing gall-bladders that are still capable of a part of their usual function. That last phrase, "function of the gall-bladder", is one which is used with such frequency that one would judge that we had a complete knowledge of this function. As a matter of fact, the reverse is true, although Rous and McMaster have shown that the organ exerts a most remarkable concentrating effect on the bile which passes through it. The theory that it is merely a reservoir for bile is open to criticism. In this connection it should be remembered that the capacity of the gall-bladder is a little more than an ounce, and it is probable that the daily production of bile amounts to nearly a liter. Another interesting observation in this connection is that the horse, the jackass, the deer, and the elephant possess no gall bladder. In my personal experience I can recall many patients who were deprived of their gall-bladder five to ten years ago, who have enjoyed good health since their operations.

Some of the arguments advanced for and against surgery in duodenal ulcer are pertinent in gall-bladder surgery. If economic conditions allow, it is quite advisable to begin the treatment of each case with medical measures. We all know, however, that many of these cases have repeated recurrences after such treatment has been suspended and finally come to operation.

We feel that too much gall-bladder surgery is performed without sufficient study of the patient. He should be studied not only from the standpoint of making a diagnosis of gall-bladder disease, but also for the purpose of estimating the margin of the safety under which the operator is working. We are able, of course, to get a fair indication of kidney function from the urinalysis by an estimation of the blood urea. In addition we feel that no patient should go to operation without a Wassermann reaction and a complete

blood count. We all know how often patients die following gall-bladder surgery where there seems to be no good reason to account for the death. Heyd has graphically described three types of deaths that occur after operations upon the gall-bladder or ducts that cannot be explained by surgical trauma, shock, sepsis, gastric dilatation or kidney insufficiency. These he attributes to hepatic insufficiency.

Type one is illustrated by the case that goes into profound vasomotor depression at the end of 24 to 36 hours after a cholecystectomy, without apparent reason. The patient's skin becomes cold, clammy, moist, and leaky. There is mental stimulation. These cases usually respond to the intravenous administration of glucose and tap-water proctoclysis every four hours. Heyd interprets this as being due to some pancreatic toxin or ferment following surgical trauma that the liver is unable to detoxify.

Type two is manifested by a progressively developing coma which usually comes on 4 to 5 days after a relatively simple gall-bladder operation in the chronically jaundiced individual and usually terminates fatally with high temperature in 12 to 48 hours.

Type three is less frequent and usually occurs in patients with a long history of gall-bladder or duct infection. They pass in coma immediately after the operation, with high temperature, rapid pulse and mental excitation, and the determination of CO_2 combining power of the blood shows an alkalosis. Heyd has been able to save a few of the latter type by internal administration of dilute hydrochloric acid.

We have all seen these desperate, stormy terminations to an apparently successful operation, and at postmortem have been unable to find sufficient evidence to justify any explanation other than liver insufficiency.

It has been our experience in many instances that chronic myocarditis or coronary sclerosis has been associated with chronic cholecystitis, thus adding to the operative risk. It is very difficult to estimate the exact amount of myocardial reserve. There are many methods which have been advocated for this purpose, such as the various breath-

holding tests, but we have not found these entirely satisfactory.

Where it is possible we believe that the patient should be prepared for cholecystectomy in a manner similar to the preparation for a thyroidectomy. There should be at least a week's stay in the hospital for the purpose of preliminary study and preparation. Daily blood pressure readings should form a part of the clinical record, as we all know that a definite increase in diastolic pressure is indicative of a poor operative risk. I wish to go on record as favoring the routine digitalization of these patients during their pre-operative rest in the hospital.

In addition, in the preparation of jaundiced patients for operation, in our experience we have found that blood transfusions are much more potent than any other method for controlling hemorrhage in the jaundiced patient. We use a transfusion routinely as part of the pre-operative preparation, and repeat it after operation if necessary. We owe it to our patients to accord them every safeguard known to scientific medicine in the preparation for operation and in the post-operative care, because we know that with every precaution which we are able to exert we shall still have a certain mortality rate.

Important Point in Surgical Technique. No one has ever been able to develop any mode of attack which renders gall-bladder surgery easy, and I doubt if anyone ever will. The surgical approach to the human gall-bladder makes a demand on the utmost skill and resourcefulness of our best surgeons. Let me emphasize most forcibly that this is not a suitable field for the occasional operator. I would like to mention a few points in the surgical technique which seem to me to be sufficiently important to merit your attention.

In the first place let me say that the greatest possible care is desirable when isolating the cystic duct. At the same time it is necessary to protect the hepatic and common ducts, as the repair of either of these is one of the most difficult problems in surgery.

We feel that it is quite unwise to perform any pelvic surgery following the removal of the gall-bladder. There is an undue prolongation of anesthesia and an undue ac-

cumulation of the factors which lead to post-operative shock.

I do not suppose that we shall ever be in full accord on the question of drainage. There are so many able proponents on both sides who feel so sure of their ground that it is probable that the truth lies somewhere between the two extremes. Personally I feel better if I use a drain. It contributes to my well-being if not to that of the patient. We all know that this is a region in which there may be deviations from the normal anatomy. Anomalous branches of the hepatic duct may be responsible for slight or moderate post-operative bile drainage, which is unexplained by a re-opened cystic duct. The danger of bile leakage from divided but unidentified ducts suggests that drainage is a necessity even in simple cholecystectomy.

It is probably best not to doubly ligate the cystic duct, as there is always a possibility of cyst formation between the ligatures, which in the presence of infected bile may result in a localized abscess. I feel that the use of heavy silk is desirable in the ligation of the duct. No ill effects attributable to the use of silk have been encountered.

It has been said that if drainage is used in fleshy patients, it is wise to bring the drains out through a stab-wound to the right so that the main incision can be completely closed. I have not felt that this procedure was advisable, because of the early closure of the sinus after the removal of the drain.

All cases in which the raw liver in the gall-bladder fossa cannot be carefully covered with peritoneum should certainly be drained, also all cases in which there is some soiling of the peritoneal cavity during the operative manipulation. It is probable that in cases where there is no acute inflammatory condition, and none of the above complications are met with, it is perfectly safe not to drain. I am aware that the anti-drainage idea is gradually gaining ground, but I am not willing as yet to fully subscribe to it.

It is always advisable to examine the appendix during the course of a laparotomy for gall-bladder disease.

The question of the proper procedure in a case of complete obstruction of the biliary tract is one which must be decided on its

merits at the operating table. I wish to sound a note of warning against assuming that all such complete obstructions are due to malignant changes in the head of the pancreas or elsewhere. The head of the pancreas may be very hard, and still this hardness may be due to only a chronic pancreatitis. If there is any doubt in the operator's mind as to whether or not he is dealing with a carcinoma of the head of the pancreas, it is wise to form a cholecystogastrostomy or cholecystoduodenostomy. These cases even with bile passing directly into the stomach usually do quite well.

While it is possible to operate for a stone in the common duct during the attack, even in the presence of jaundice, it is, however, generally speaking, better to tide the patient over the attack, particularly if the jaundice shows any evidence of subsiding, and to operate in the interval. That was the old rule and a very good one. In fact, we are on rather dubious and dangerous ground if we remove the gall-bladder in the presence of jaundice or the evidence of obstruction of the common duct. The gall-bladder may subsequently have to be utilized to side-track bile, either to the stomach or to the duodenum. If this last necessity arises and the gall-bladder has been removed, it is impossible to cope with the situation successfully.

In the last few years a great deal of attention has been focused on the relation between hepatitis and cholecystitis. Whether infection extends from the gall-bladder to the liver or from the liver to the gall-bladder by contiguity is a question not yet decided, but we at least know that very often both are involved and infection of one may induce infection of the other, thereby setting up a vicious circle. It has been recommended that a small portion of the liver adjacent to the gall-bladder be removed for frozen section and that, if there is evidence of hepatitis with round cell infiltration, the gall-bladder be removed in order to eliminate the vicious circle. We have not employed this method as a routine procedure.

Finally, I would urge the necessity of very careful closure of gall-bladder cases.

Conclusion: It will be noted from the above discussion that we are not so much

concerned as to whether the treatment of gall-bladder disease should be by the use of medical or surgical measures. I do not think that any one blanket rule will cover all contingencies. We make an attempt to have our cases handled by both the internist and surgeon working in close cooperation because the problem up to a certain point is essentially medical and we feel that any tendency to develop a *furor operandi* may best be held in check by counsel with our medical colleagues. I would like again to urge the great necessity for a careful diagnostic study, utilizing all of the methods of exact diagnosis which may be at hand. If surgical procedures are decided upon, let me urge most strongly a preliminary period of careful observation and preparation in the hospital in order that we may estimate the patient's ability to withstand the surgical procedure and fortify him for the ordeal.

DISCUSSION

Dr. W. H. Wallingford, Princeton:

I WISH to compliment Dr. Fulton upon his excellent paper. I think he has given us a very fine paper indeed; it is chock-full of common sense and devoid of all fine-spun theories; it is something we can all understand.

Dr. Fulton has emphasized the importance of the history of the patient. Because of the modern diagnostic methods we have, we are inclined to minimize the importance of the history. Another thing he brought out that I think is important and that is very often overlooked is the fact that we may have cardiac pain simulating gall-bladder disease. I should like to ask Dr. Fulton if he has had any case of proven gall stones in which the pain has been situated on the left side. I have had two cases that came to operation in which the pain was on the left side, radiating around the left border of the ribs and along the left shoulder. A diagnosis of ulcer was made. On operation

both were found to have gall stones, with rather small gall bladder situated extremely far back of the liver.

The pain, its site, radiation, character, and intensity, is the chief point in the diagnosis of gall-bladder disease. He also states that the removal of the gall bladder for chronic dyspepsia, in the absence of colic, will often give unsatisfactory results. I do not know much about the modern diagnostic methods. Chole-cystography, I think, is a great aid to the surgeon, but, like all methods, like pituitrin, etc., will be terribly abused. I do not believe operation should be done on the dye test alone. If the jaundice is decreasing you can take plenty of time to get your patient in good condition; if increasing, you have to be very careful. It seems to me the operation to do is the one that will get your patient well. Sometimes it is necessary to do both cystotomy and cystectomy to do this. It will require, in giving the cause of death in gall-bladder diseases to divide them into paramount causes and other (contributing) causes. The paramount causes are (1) chronic and long-continued jaundice; (2) cardiovascular-renal disease; (3) abscess around the cystic duct (Deaver claims this has a mortality of around 30 per cent.); (4) carcinoma. Among the contributing causes he includes embolism, which he says is quite common—more common than generally thought. He also named acute hepatitis, associated pancreatitis, liver stones, and, last, peritonitis.

I was struck with Dr. Fulton's statement of the preparation of his patients and also by another thing in his paper—that he always gives a transfusion in the jaundice cases. I should like to ask what method he uses, whether he uses the citrated method and, if so, to explain how that controls hemorrhage when it is a known fact that the citrated infusion can cause hemorrhage.

Another thing that interested me was the incision beginning at the ensiform cartilage and ending just short of the umbilicus.

The question of drainage, I think, has to be left to each surgeon himself to decide.

We get some very excellent results without drainage by the use of what he calls the subserous incision. He incises the serous coat of the gall bladder, strips the gall bladder out of the serous coat, ligates the cystic duct inside of the serous coat, and after he has done this closes the serous coat with a running stitch of catgut, which leaves the hepatic fossa covered with serous membranes. However, I can see how a person might have some trouble with that operation. If the cystic duct should happen to leak we might have abscess inside the serous coat or possibly a false gall bladder.

The question in gall-bladder surgery is what to do with the borderlike cases. I should like to ask Dr. Fulton what he would do with a gall-bladder case with a moderate amount of adhesions with no other evidence of gall-bladder disease. Some surgeons contend that if the adhesions are due to infection the gall bladder should be removed; if not, leave it alone. I should like to ask if there is any way to distinguish those adhesions from infection or from other causes.

I wish to compliment the doctor on his paper.

Dr. W. W. Golden, Elkins:

Dr. Fulton's paper proved very interesting and very instructive. I like very much his conservatism. That is not exactly what I want to say, for that implies perhaps being a back number, but I like his safe and sane judgment. He is not dogmatic; he has no set way, while he is following certain very definite principles. He has covered practically all the problems of the day in reference to gall-bladder surgery. When I was first asked to be one of those to open the discussion, the title of the paper as I received it read "Observations of the gall-bladder", instead of "Observations on the gall-bladder problem", and for that reason I jotted down a few remarks, think-

ing that the doctor would probably dwell larger on the visualization of the gall bladder by the Graham-Cole method. With your permission I shall read those remarks.

Dr. Fulton, closing the discussion:

I feel very much complimented indeed at having my paper so ably discussed by you two gentlemen. Our time is getting short, and I want to answer just a few of Dr. Wallingford's questions.

We use the direct method in blood transfusion and do not use the citrated method at all. We have used it in something like a thousand cases during this last year. The reason the direct method is not more used is that men are not particularly trained in doing it, and it can be a most difficult thing to do when men have not had much experience. I try to have two of our men particularly trained, so that they become very expert in blood transfusion.

I believe the next question was about the symptoms of borderline cases with adhesions between the gall bladder and the pylorus and what to do. Of course, there comes your careful study again, with instruments of precision, to eliminate everything else you can. Just before I left Wheeling to come down here I operated on a man seventy-six years of age under local anesthesia and drained the gall bladder without any complaint on the part of the patient, whatever. So those are the cases that require the greatest care. As Dr. Coleman indicated, in brain abscess and that sort of thing local anesthesia has a wonderful field. After you have absolutely convinced yourself that these adhesions are causing the trouble, then I should think you are justified in going in.

I have had many cases with pain on the left side, and I have done a number of operations by the method which you indicated, burying the cystic duct.

I agree with you that all of these cases should be drained. I had a series of twenty cases that I did not drain, and the last one died. I can not but feel that if I had drained that one would not have died.

I believe that is all. I thank you.

(End.)

THE GORGAS IDEA APPLIED TO INDUSTRIAL MEDICINE AND SURGERY

R. H. WALKER, M. D., F. A. C. S.

*Chief Medical Examiner,
West Virginia Compensation Department*

IT IS ONLY within recent years that the importance of preventive medicine is being fully recognized. Yet history gives us striking proof of the efficacy of measures calculated to avoid disease and disability rather than to treat them after they are incurred. In the sixteenth century, the average span of life was twenty years; in 1800, it was thirty-three years; and in 1925, fifty-eight years. Surely the fact that the duration of human life has been almost trebled within four hundred years should offer sufficient encouragement for the fullest application of preventive medicine.

Industry has the most to gain from preventive medicine, not only from a humanitarian viewpoint but also in terms of dollars and cents. Yet many business magnates, while always ready to invest freely in other efficiency devices, seem to loath to spend the money required for the fullest application of preventive medicine and surgery in the industries.

The history of the Panama Canal is a striking example of how industry is dependent on preventive medicine. Without medical aid, the canal could never have been built. The earlier French attempt was a dismal failure, because disease devastated the ranks of the workmen.

Before attempting to build the Canal, it was necessary to construct a forty mile railroad across the isthmus from Colon to Panama City. The Canal Zone was so heavily infested with yellow fever and malaria that a human life was sacrificed for every tie on this railroad.

President Roosevelt, always a staunch adherent of preventive medicine, sent General William Crawford Gorgas to clean up the pestilence of Panama, before allowing the workmen to start their task. And Gorgas

converted the Canal Zone from a hotbed of yellow fever and malaria into one of the healthiest places in the world. That is what the French failed and the Americans succeeded.

The Gorgas Idea is of capital importance to every captain of industry; for the message it conveys is that, if he wished his business to flourish to the utmost, he must guard the health of his employees as one of his most precious assets.

Physical Examination Before Employment

A military rule that has been proved productive of great good is the universal physical examination of all applicants for enlistment. Before accepting a man for service and assuming the responsibility for his welfare, the Government must first be assured that he is physically fit.

Organized industry would do well to adopt a similar rule. The "Hit or Miss" method of employing labor still followed by many industrial organizations is very bad, both from a health and business point of view. It would be a much wiser plan to insist on a thorough physical examination of all prospective employees. Such an examination would enable the employer to keep records of employees physical condition, and later would be valuable information in case of injury. These records would also assist materially in reducing the cost of investigations.

Sick employees are not only a liability to the company, but also a detrimental influence on the other workers. Many of the agitators so common around industrial plants are really sick men. If they were treated properly with regard to their physical and mental condition, they would see things in a different light.

A source of injustice to employers is the man who enters service with a hernia. Either because of a slipshod medical examination or none at all, the defect is not discovered when

* Read before the Fayette County Medical Society in August, 1927.

he accepts employment. A weak internal abdominal ring may easily be overlooked, unless the examination is carefully conducted. The natural inference is that the hernia developing during employment was incidental to the occupation, and the result is the employee receives compensation for a defect that really existed beforehand.

Rejected applicants should always be told why they are not employed. If the defect is remediable, many of them will take steps to correct it and fit themselves for the position. Furthermore, it is only fair to apprise them of the nature of their physical troubles, in order that they may seek medical advice.

In many instances, it is wise to accept applicants with minor defects for specially selected positions. These handicapped employees often prove more than ordinarily efficient in positions suited to their abilities; furthermore, they are likely to show their appreciation with a high sense of loyalty.

From another point of view, it is only fair to old employees that all new workers should be examined with reference to the existence of communicable diseases. To allow a man harboring an active infection to mingle freely with his associates endangers the health of the whole organization, and incidentally, the operation of the business itself.

All new employees should be required to submit evidence of successful vaccination against smallpox and typhoid or else be vaccinated again. The importance of this measure cannot be over emphasized. Since 1910 there have been two epidemics of smallpox in the Kanawha and New River coal fields of West Virginia which practically required these regions to suspend operation. There was a loss of a great amount of money, which might have been prevented by insisting on compulsory vaccination.

Careful physical examination before enlistment in the Army has proved of great value in protecting the Government against unjust claims and also safeguarding the health of the military personnel. It will prove equally serviceable in the case of the large industries; but the examination must consist of a careful survey by skilled medical men, not a hasty and perfunctory "once

over" by a physician who is interested in nothing but his salary.

Periodic Health Examination for Employees—The first physician to advocate periodic health examination was Doctor Horace Dobell, of London, who published a book on the subject in 1864. Dobell wrote in the following almost apocalyptic language:

"The manner in which man is to exercise his instrumentality for the prevention of disease, the prevention of the vestiges of disease, and the prevention of fatality in disease, is to search out these earliest evasive periods of difficulty in the physiological state, and to adopt measures for their remedy—I wish, then to propose, as the only means by which to reach the evil and to obtain the good, that there should be instituted, as a custom, a system of periodical examinations to which all persons should submit themselves, and to which they should submit their children."

In 1907 President Roosevelt inaugurated the practice of periodic health examination for the officers of the Army. By this means, many unfit officers were weeded out from the service; and—what was still more important—physical defects were frequently detected at a time when they could be remedied.

Frequent examination of the military personnel during the World War was very largely responsible for the good health of our troops. This inflexible practice, had a two-fold benefit: In the first place, communicable diseases were detected at a time when the soldiers could be isolated from their associates; secondly, unfit soldiers were kept away from responsibilities that were too great for them and promptly sent to the base hospitals for remedial treatment.

The movement for periodic health examination has now gained great momentum among the civilian population. And nowhere is it more important than in the larger industries; for human beings are the working parts of these vast organizations, and production is directly dependent upon their health and efficiency.

Periodic health examination will render the same service to industry as it has to the Army.

Preventing Disability—Much permanent disability could be avoided if injured workmen were invariably given the highest grade of medical attention. Unfortunately, there is still a tendency in some quarters to engage for responsible industrial positions any physician who can show a license and is willing to work for a bare livelihood.

This practice is not only inhuman but also false economy; for an underpaid physician does not differ greatly from an underpaid artisan. The result is that the savings on the doctor's salary is multiplied tenfold by the greater disability resulting in improperly treated patients.

First aid instructions to selected men and the organization of first aid teams can accomplish a great deal of good. For instance, a person suffering from a fracture is under ordinary circumstances hurried to the hospital without any attempt at splinting. The result is that, when the patient arrives, the fragments of the broken bones have suffered severe displacement. In the case of compound fractures, it is not unusual to have infection introduced by the clumsy efforts of untrained attendants.

A group of intelligent men can be taught to perform valuable service in the way of first aid. They can be taught how to apply splints to hold the fragments of a broken bone in opposition and thus avoid displacement and injuries to the muscles, nerves and other structures.

Every injury, no matter how slight, should be reported promptly to the surgeon. In all industries this should be made an inflexible rule and enforced rigidly. Scratches, lacerations, and bruises are usually considered too trivial to be brought to the attention of the physician. However, the application of an antiseptic and a sterile dressing requires only a few minutes, and it may be the means of saving life or preventing disability.

I recall the case of a miner, employed by a large coal company, who scratched his index finger. He did not report to the company physician for four days. Then cellulitis developed. The patient was in the hospital for six weeks, and it was necessary to amputate the index finger. He now has

a deformed and functionally useless hand. He was awarded 50 per cent disability, which amounts to \$3,200.

A few drops of iodine and a sterile dressing, promptly applied, would have saved all this trouble and expense.

Treatment of Injured Employees.—To state that every injured workman is entitled to the best surgical care that medical science has to offer, sounds like a platitude. But, since many industrial plants may justly be accused of worrying too much about their machinery and too little about their human material, it is necessary to make these apparently commonplace remarks.

In West Virginia the rehabilitation of injured employees is sadly neglected. Much evil arises from the practice of contracting with various hospitals for the care of sick and injured workmen. In many instances, the employers are inclined to drive a hard bargain. In other words, the hospital offering the lowest rate for the largest number of potential patients is most likely to receive the contract. The result is that, if the admission of patients at any time exceeds the expected number, the hospital is faced with the alternative of giving the absolute minimum of medical attention or suffering serious financial loss.

The contract hospital naturally discharges its patients at the earliest possible moment, as every day weighs heavily against the hospital finances. The end result is that there is much greater permanent disability than would occur if all injured employees were treated promptly, carefully, and without undue haste.

Here is an instance of what actually occurs: A workman suffered an injury to his hip and was taken to a contract hospital. Here a perfunctory examination was made and he was allowed to stay in a ward for ten days. No x-ray examination was made at any time. Although the limb still pained him and he had a decided limp, he was told that the condition was only a strained muscle of the thigh and discharged. A year later he reported to the Workmens Compensation Commissioner's office and made his complaint. Then, after a proper examination, it was discovered that the true con-

dition was a dislocation of the hip.

What could the Commissioner do after a year's time. It was too late to reduce the dislocation by a simple manipulation and give the treatment that should have been used in the first place. All that was left was to award compensation for a permanent disability that should have never existed.

The moral injustice of this situation is obvious. There is no need to dwell further upon it. But there is also an economic aspect. The money spent for compensation for permanent disability that would never have existed but for slipshod methods of treatment would pay many times over for the routine use of the most perfect methods of medical and surgical attention that modern science has to offer.

And, viewing the situation from the most selfish angle, all parties concerned would save money because of the great reduction in the incidence of permanent disability that would follow.

There is a military rule applying to the treatment of the wounded in battle from which the industrial surgery could derive much benefit. Officers of the Medical Corps are taught to give preferential attention to those injured men who will eventually be able to return to the front. In other words, the prime function of the medical officer is to keep as many efficient men at the front as possible. Of course, the very seriously wounded also receive proper attention for humanitarian reasons. But military exigencies place the greatest premium on the correct treatment of the slightly wounded.

Under industrial conditions, the seriously injured are likely to receive proper attention, while those with minor troubles are apt to be neglected. Looking at the situation from a cold-blooded viewpoint, this practice represents poor policy; for the persons with grave injuries will suffer disability, no matter how well they are treated, while those with minor injuries may become disabled simply for lack of proper attention.

The highest quality of surgical treatment for all minor injuries will bring about the greatest saving of money by reducing the incidence of permanent disability.

Use of Safety Appliances.—Much benefit is accomplished by the work of first aid and rescue teams. Government, State and charitable organizations have cooperated to instruct intelligent persons in the application of the all important first aid treatment pending the arrival of the physician. In general, the code of instructions outlined by the American Red Cross has proved highly satisfactory as a plan of first aid treatment to be taught in places where industrial hazards are great.

The installation of safety devices is most important. Many common injuries could be prevented if more attention were given to their invention and use.

Unfortunately attention is focused largely on the spectacular accidents, to the exclusion of the more important but less dramatic injuries. A mine explosion is followed by big newspaper headlines, and an investigating committee orders the employment of various safety measures in the future. But falling slate and coal cause far more injuries than all the explosions combined. However, since one or two men are hurt at a time, public attention is not attracted. The compensation awards in West Virginia for disability resulting from falling slate and coal totalled \$1,500,000 in a single year.

Aside from humanitarian motives, the extravagance of withholding proper safety devices against falling slate and coal is apparent. Let us take an example from the files of the Workmen's Compensation Commissioner: A miner, aged 30, is crushed by a slate fall and totally disabled. After investigation the Commissioner awards him a total disability rate of sixteen dollars per week for life. Having an excellent vitality in spite of his disability, the expectancy is that the miner will live to the age of sixty. Thus he will receive a total sum of \$24,960, an amazing cost for a preventable accident.

Humanitarian aims demand reform in our methods of caring for sick and injured workmen. But, even viewing the situation from an economic standpoint, we cannot escape the conclusion that the institution of proper preventive measures would result in a great saving of money to all parties concerned.

SUMMARY:

The application of the principals of preventive medicine to industrial conditions—that is, the Gorgas idea adapted to industrial medicine and surgery—would effect a pronounced decrease in the incidence of permanent disability. In fact, the saving of money paid out on compensation awards would more than offset the additional expense required to give every injured or sick workman the best possible medical attention.

Every prospective employee should receive a careful preliminary physical examination. This practice would not only protect employers from claims for injuries which really existed beforehand, but also safeguard the health of those already employed, especially with regard to the trans-

mission of communicable diseases. Periodic health examinations should likewise be conducted at least once a year, in order to keep the health and efficiency of the working force up to the maximum.

To award a contract for services to injured employees to a cheap hospital or to give such a position to a poorly trained physician, is a very short-sighted policy. The meager savings from this source are multiplied many times by the increase in permanent disability caused by unskilled medical attention.

A careful preliminary examination, a periodic health test for every employee, and the services of a highly trained surgeon for every injured workman, though entailing immediate expense, would really be followed by substantial savings on the bank accounts of large industrial operators.

AN ANTIGEN FOR TREATMENT OF TUBERCULOSIS: ITS PREPARATION AND USE

By JOHN NATHAN SIMPSON, MD., and
ROBB SPALDING SPRAY, Ph. D.

*West Virginia University Medical School
Morgantown, W. Va.*

PROBABLY no phase of preventive and curative treatment of disease has been so thoroughly studied as that pertaining to tuberculosis. Since the early work of Koch the scientific world has been alternately thrilled and depressed with the hopes and failures of attempts to produce prophylactic or curative antisera or antigens active in the suppression of this disease.

The field has been so repeatedly worked and re-worked, and so confused with questions of correlation of immunity with hypersensitiveness; whether one exists in the absence of the other; whether immunity develops in the absence of the tubercle; and whether dead bacilli and their extractives

are antigenic, that one hesitates to enter voluntarily into the discussion, even by attempting to corroborate the work of others.

However, there has appeared recently a study by Negre and Boquet (1) of the Pasteur Institute, endorsed by Calmette, of an antigen which, in the course of some five years trial in various European clinics, has given rise to such favorable reports by Armand-Delille, Guinard, Courcoux and Biderman and others, as to deserve attention.

As will be noted later in the discussion of the paper, this antigen has been used locally for some time, its source being the Pasteur Institute. Due to the difficulty and delay in obtaining it even in small quantities we were requested to undertake a study of the feasibility of its local preparation. This paper, then, presents a brief review of the work of

* Read by John Nathan Simpson, Dean, at the 61st annual meeting of the West Virginia State Medical Association on May 23, 1928, presenting a report of the preparation and supply for clinical trial, and the corroborative experimental study of Robb Spalding Spray, Professor of Bacteriology.

Negre and Boquet, and the results of our study up to the present date.

The study of Negre and Boquet originated in an attempt to produce a stable, sensitive and specific antigen for use in complement fixation tests for tuberculosis. As shown by Myer, the acetone insoluble and methyl alcohol soluble extractives of the tubercle bacillus, composed principally of phosphatids, are most active for this purpose. The acetone fraction, consisting largely of the fats and waxes, is inactive in this respect.

Rabbits inoculated with the methyl alcohol extractives developed complement fixing antibodies in high concentration. Armand-Delille and others have reported a cutaneous reaction in tuberculous children when these extractives are applied like tuberculin. In all essential respects, then, they behave as antigens.

In the course of these studies Negre and Boquet were impressed with the fact that the tuberculous animals, treated with the methyl alcohol extract, lived weeks or months longer than the controls. This led to a study of its possible preventive and curative effects on animals over a period of several years. From these experiments it appears that the alcoholic extract has definite prophylactic and therapeutic properties, and that the preliminary extraction with acetone increases the efficiency of the antigen. They attribute this action to the alcohol soluble lipoids,—the phosphatids, extracted from the tubercle bacilli.

However, in the light of the studies of Seibert (2) and Branham and Humphreys (3) bacterial culture filtrates containing as little as 0.000003 to 0.000004 grams of protein are shown to be strongly antigenic, stimulating the formation of agglutinins, precipitins and complement-fixing antibodies. Such minute amounts of protein are not detectable by the usual chemical tests. Since, in the course of preparation of the methyl alcohol extract there is no attempt made at its purification, it is not impossible that traces of bacterial protein, or possibly lipo-protein, are carried over into the antigen. These hypothetical proteins may then be responsible for some of

the antigenic activity. However, Pinner (4) concludes that the antigenic principle is definitely non-protein.

The antigen was then tested in various ways on guinea pigs and rabbits, about 100 each, in a series of experiments. The guinea pigs were infected by ocular instillation of from 0.1 to 0.5 mg. of virulent bovine bacilli, while the rabbits were inoculated intravenously with 0.001 to 0.002 mg. Some were treated with the antigen before, some after infection. A review of one rabbit experiment will represent their results:

"Attempt at treatment of tuberculous rabbits by subcutaneous inoculation; four rabbits infected by intravenous inoculation of 0.002 mg. of bovine bacilli, received every 3 days 2 cc of the methyl alcohol antigen subcutaneously:

1st died prematurely at 38 days with slight discrete pneumonia.

2nd died at 95 days with confluent lesions limited to the lungs.

3rd died at 97 days with caseous pneumonia.

4th died at 127 days with confluent lesions confined to lungs.

2 controls died rather early, at 62 and 64 days, with diffuse pulmonary lesions and tubercles in kidneys."

From a number of such experiments it appears evident that, while the antigen does not completely protect, the antigen treated animals live much longer, and show a distinct restriction of the lesions usually to the lungs alone.

The next step in the problem was the actual test of the antigen in the various forms of human tuberculosis, his phase has been studied in several European clinics by others than the authors, and, with few exceptions, with very favorable reported results.

In tuberculosis lupus, studied by Drs. Lortat-Jacob and Bethoux, they conclude that the antigen has a remarkable effect on the general state of the patient, and that it con-

stitutes a valuable adjuvant to the treatment of skin and mucous tuberculosis. The same conclusions are cited by Halbron and Isaac Georges.

In two cases of laryngeal tuberculosis, studied by Castelnu and Saily, the patients gained from 5 to 10 kilograms; the temperature returned to normal; the general health improved, and the lesions cicatrized.

In the study of tuberculous adenitis Dr. Courcoux and Biderman conclude that the antigen is particularly valuable in recent cases, both suppurative and non-suppurative, this treatment sometimes succeeding where other therapy failed. The same conclusions were drawn by Drs. Bernard, Baron and Valtis in the study of 20 cases of adenitis and fistula. They regard it of particular value in that it lacks the toxic action of tuberculin.

Eight similar cases were reported from various hospitals, with the same conclusions. The only failures appear to be in the old cases where the lesions are calcified. An additional valuable feature is that the treatment may be conducted without interference with the occupation of the patients.

Thirteen cases of osteitis and arthritis, with and without fistula, were treated with the antigen by eight physicians. Amelioration or cure was reported in every instance. The response of the patient by gain in weight and in general health, and in the cicatrization of the open lesions appears to follow the course of the treated cases of adenitis.

Eight cases of peritoneal, renal, intestinal and testicular tuberculosis responded to treatment by improvement or cure within 3 months, with gain in weight and disappearance of the ascites, and with cicatrization of the open lesions.

Approximately 200 cases of pulmonary tuberculosis are reported from some 25 clinics and sanatoria. In practically all cases, other than the hyperthermic, marked improvement was observed by gain in weight and appetite, disappearance of the bacilli from the sputum, and of stethoscopic sounds.

The only contraindication to the use of the antigen appears to be in the advanced pulmonary cases with marked fluctuation of temperature, or in the acute febrile or sub-normal temperature periods, where it is advised that it be used only with particular caution.

Preparation of the antigen; the antigen is prepared from wasted and dried masses of human and bovine tubercle bacilli grown six weeks in glycerin broth (as used in the preparation of tuberculin). The cultures are first sterilized by autoclaving 30 minutes at 120 C., then the bacilli are collected on filter paper and are washed with sterile distilled water. The bacilli are then dried in the oven or in vacuo.

Equal weights of the dried human and bovine bacilli are extracted with C. P. acetone, in the proportion of 1 cc of acetone for each centigram of bacilli for 24 hours. (the authors later advocate extraction for 5 days with acetone). The acetone extractives, which have been shown to carry the toxic and thermogenic elements, but not the antigenic property, are filtered off and the bacilli are dried. The extracted bacilli are then treated for 10 to 12 days with absolute methyl alcohol in the same proportion of 1 cc of alcohol per centigram of dried bacilli. The suspension is frequently shaken. Finally the alcoholic extract is repeatedly filtered clear, and constitutes the methyl alcohol extract antigen stock.

To prepare for use the stock antigen is added to an equal volume of sterile physiological salt solution, at first slowly, later rapidly, with constant agitation, and a turbid fluid results. This is evaporated in vacuo at 48 to 50c. to remove the alcohol. The result is a saline suspension of the antigen ready for use. This antigen is then sealed in ampules of 1 cc volume, and constitutes the "Pure Antigen." At the same time a portion of this pure antigen is further diluted to 1-10 with 9 volumes of salt solution, giving the "Dilute Antigen," which also is distributed in 1 cc ampules.

Technic of application; the antigen is administered subcutaneously or intramuscular-

ly in increasing dosage, beginning with the dilute antigen (16 or more injections), then passing to the pure antigen and continuing treatment according to the following scheme:

The method of inoculation recommended is intramuscular near the point of the scapula. The skin is prepared as usual, and the antigen is injected with a sterile syringe (using preferably a tuberculin syringe for accuracy of the smaller doses). The injections are made every fourth day,—that is, skipping two days between doses as follows:

1st day	1st dose,	1/4 cc	Dilute	Antigen
3 days later	2nd "	"	"	"
" " "	3rd "	"	"	"
" " "	4th "	"	"	"
" " "	5th "	1/2 "	"	"
" " "	6th "	"	"	"
" " "	7th "	"	"	"
" " "	8th "	"	"	"
" " "	9th "	3/4 "	"	"
" " "	10th "	"	"	"
" " "	11th "	"	"	"
" " "	12th "	"	"	"
" " "	13th "	1.0 "	"	"
" " "	14th "	"	"	"
" " "	15th "	"	"	"
" " "	16th "	"	"	"

If there be any temperature reaction of importance, diminish the next dose and augment it again only when the patient no longer shows an appreciable temperature.

If no reaction appears to the last injection of dilute antigen, then go to the pure antigen, starting with 1/4 cc for the first dose, and repeating the above scheme of injections, using the pure antigen. After the 1.0 cc dose of pure antigen is attained, treatment may be continued according to indications, never exceeding the dose of 1.0 cc.

Experimental study at the West Virginia University Medical School; before accepting the responsibility of the local preparation of the antigen it was considered advisable to undertake, in a small way, an attempt to confirm the reported efficiency on animals, as well as to determine its possible toxicity, or other harmful properties.

Thus far three lots of antigen have been prepared. The required mass of bacteria was kindly furnished by Parke-Davis Com-

pany of Detroit. The technic of Negre and Boquet was observed throughout in the preparation. In only one respect did we vary,—that was in the addition of 0.4% trikresol to the finished antigen as sealed in 1 cc ampules. This protective feature was regarded as advisable, and in no way interfering with the action of the antigen.

Due to limited facilities only 15 rabbits were included in the test. Initial weights were determined and were repeated twice a week at approximately the same hour.

Three rabbits were treated as follows:

No. 24 received 2 cc of pure antigen intravenously (2/13/28), to determine its possible toxicity in this amount (roughly 100 maximum human subcutaneous doses by relative body weight). No toxic reaction was observed.

No. 8 received 1 cc of pure antigen intravenous (2/13/28). No reaction was observed.

No. 2 received 1 cc of pure antigen subcutaneous (2/14/28). No reaction was observed.

On 2/20 and 2/25, and thereafter through 4/7/28, all three rabbits received 1 cc of pure antigen subcutaneously each Saturday (once a week). Beginning on 4/11, however, 1/2 cc antigen was injected twice a week, on Wednesday and Saturday.

On 3/3/28 all 15 rabbits were infected by intravenous inoculation with 0.5 mg. each of live human and bovine tubercle bacilli taken from a 14-day glycerin broth culture. The bacterial flakes were dried roughly with sterile filter paper and the weighed mass shaken with sand and glass beads to give a fairly uniform suspension. Each rabbit received 1.0 cc containing, by dilution, approximately 1.0 mg. of live bacilli. (Note that this was roughly 1000 times the infecting dose used by Negre and Boquet).

Immediately afterward, on the same day, 2 rabbits (No. 22-25) were given their first dose of 1.0 cc of pure antigen subcutaneous.

One week later (3/10) 2 rabbits (No. 75-182) received their first dose of 1.0 cc of

pure antigen. (One week after the infection).

Two weeks later (3/17) 2 rabbits (No. 183-192) received their first dose of 1.0 cc of pure antigen. (Two weeks after the infection).

It should be remembered that rabbits No. 2-8-24 received 3 injections of antigen before, and 1 dose on the day of infection.

Six control rabbits (No. 1-5-6-7-9-16) did not at any time receive any antigen at all.

All rabbits were fed alike on oats and rutabagas, with lettuce and cauliflower greens two or three times a week. The cage was placed close to a window giving the full afternoon sunlight through glass.

Results of Rabbit Experiment; the bi-weekly weights are plotted on the accompanying charts.

Beginning with 4/11 a very slight subcutaneous induration was noted in several of the treated animals, as though a slight sensitization were developing. The dosage was then reduced to 1/2 cc given twice a week.

On 3/3 rabbit No. 8 unfortunately received a broken hind leg while struggling during inoculation. This animal refused food, lost weight and died on 3/14. Autopsy at this early date did not reveal any evidence of tuberculous infection.

Rabbit No. 22 had snuffles at the time of infection (3/3). It developed a diarrhea on 3/5, with rapid loss of weight, and died on March 12. Autopsy did not show any tuberculous lesions, and a *Pasteurella* was recovered from the heart blood.

Rabbit No. 25, in the same cage with No. 22, developed a diarrhea on 3/10, lost weight rapidly and died on 3/23. Autopsy revealed no tuberculous lesions, and inoculations from the heart blood yielded a *Pasteurella* in pure culture.

Rabbit No. 192 showed a nervous disturbance on 3/17, a slight noise causing it to race about the cage and fall in convulsions. It died on 3/30. Autopsy showed a diffuse

pneumonia and numerous coccidial cysts, but no tuberculous lesions.

Thus the original small number of experimental animals was unfortunately reduced by accident and intercurrent infection to a serious extent.

On 4/4 (in 32 days) the first control rabbit (No. 6) died. This animal had lost weight constantly from the start. Autopsy showed advanced caseation in both lungs, with discrete and confluent lesions of tuberculosis. One small lesion was observed in the liver, but none in spleen nor kidneys on gross examination. Stain of the caseous material from the lung peculiarly showed first long, slender granular, morphologically human type of acid-fast bacillus, while the second organism observed was a short, plump, representative bovine type. Subsequently many of each type were observed. This might be taken to suggest that both inoculative strains were present and active.

In the absence of death and autopsies of the remaining infected animals the only visible evidence of the progress of the infection which can be graphically presented is the weight curves. Such evidence is obviously complicated by numerous uncontrollable factors such as age of animals, normal gain expectancy, time of feeding and weighing, seasonal temperature and light fluctuation, and many others. Weight curves alone are obviously not an accurate measure of state of health, nor degree of infection. However, to one in a position to observe the infected animals from day to day, certain characteristics, impossible to describe adequately, were quite evident. The two treated rabbits (No. 2-24) not only gained weight constantly, but were at all times fat, glossy coated, healthy and contented looking animals. The six control rabbits, on the contrary, not only lost weight, but were visibly emaciated, rough coated, with drooping ears and other easily recognized appearances of illness.

Due to time limitation it is impossible to report at present the completion of the experiment, death of the rabbits not having yet occurred at this date of presentation.

Judging from the present condition of the rabbits, however, we feel safe in expressing our belief that the control rabbits will die in the usual time, and the hope that at least the two rabbits (No. 2-24), treated with antigen before infection, will continue in their present satisfactory state of health.

Summary

1. We have briefly presented a review of the work of Negre and Boquet on the preparation of a methyl alcohol antigen extracted from acetone treated tubercle bacilli, and its use experimentally on animals, as well as in the treatment of various clinical forms of human tuberculosis.

2. Due to time and space limitations we have not attempted a review of the extensive previous work along these lines, such as the studies of Von Ruck (5), Von Ruck and Flack (6), Grofton (7) and many others. An excellent summary of attempts along this and related lines may be found in the recent review by Long (8).

3. On the whole such attempts to produce an active therapeutic tuberculous antigen have not met with favorable reception, although specific experimental evidence to the contrary is conspicuously lacking in the available literature.

4. The results of our small-scale experimental test on animals, using an infecting dose of roughly 1000 times that of Negre and Boquet, appears to support their reported favorable results.

5. Local clinical application, to be presented in the later discussion, also supports their observations, as well as those of numerous European clinicians, in the treatment of the various forms of human tuberculosis.

6. The details of the preparation and use of this antigen are presented, and

7. The antigen has been prepared locally, tested for evidence of toxicity and potency, and is now available for trial by such as may desire to apply it in their practice.

Discussion by Dr. C. H. Hall, of Elkins.

Mr. President:

I hope I may be pardoned for reading my part of the discussion of Dr. Simpson's splendid paper, but as my part of the discussion is in fact a supplement to the main paper, being a report of the clinical use of this antigen, I thought it better for the sake of accuracy, to write it down.

I have studied this paper with a great deal of interest because I believe it is very commendable that the center of the medical education in our state should undertake to investigate new and promising procedures that are brought forward for the treatment of disease, and especially the disease under consideration, for there have been so many fake claims advertised for its cure solely for the purpose of taking the money of the unfortunate sufferer who is ready to grasp any straw of hope that is held out to them; also so many honest efforts have been made to find something that would really conquer the disease and have ended in failure, that the attitude of the medical profession has swung to the negative pole, that might be described as pessimistic and skeptical, and it is this frame of mind that has allowed us to become complacent and self-satisfied with the sanatorium treatment, which is at best negative, being only the controls of the activity and environment of the patient, and allowing nature, further unaided, to take its course.

This is not intended as a criticism of the sanatorium treatment, for it is very beneficial and quite necessary, but it should only be considered as a necessary condition under which something more positive could be at-

tempted. So my protest is not against the sanatorium, but against that fatalistic attitude that discourages further effort for a positive cure.

Surgery with its artificial pneumothorax and thoracoplasty has gone much further in a positive way to cure this disease than has medicine.

The first antigen I received came from Paris and was placed in my hands by Dr. W. S. Magill; this I began using on patients which I will enumerate briefly, with the results observed in each case. I also received a supply of antigen from our own University as prepared there and used it on each case treated, with the exception of case No. 1, on which only the Paris antigen was used. These antigens were used alternately in order to compare the reactions of the two.

Case No. 1:—Female, lung T. B. complicated by severe pleuresy. 12 doses, pleuresy gone, much improved.

Case No. 2:—Male, lung T. B. 8 doses, sputum negative, much improved.

Case No. 3:—Male, lung T. B., far advanced, 7 doses, some improvement, sputum positive.

Case No. 4:—Female, lung T. B. far advanced, some improvement, sputum positive.

Case No. 5:—Female, arrested for two years, 10 doses as prophylactic against strain of delivery, some malaise and cough developed, labor normal and cough better, sputum negative.

Case No. 6:—Early lung T. B., 10 doses, case apparently arrested.

Case No. 7:—Female, Early lung T. B., 8 doses, apparently arrested.

Case No. 8:—Female, old arrested case of 12 years standing, with recent breakdown, cough and expectoration increased.

None of these results are entirely conclusive as to benefits derived because of the fact that calcium was used intravenously in all cases and at least part of the improvement might be attributable to this fact; however, some interesting conclusions may be drawn.

After every injection a local reaction was observed, grading from very mild to moderately severe, but subsiding before the next treatment was due.

In only one instance was any temperature reaction observed, that being in case No. 8, in which a hyperthermic condition of 101 F. was observed after one injection, but was normal next morning.

The antigen was apparently detrimental in case No. 5 and No. 8.

Contrary to general opinion, the results seemed to be beneficial in active febrile cases.

Six cases showed no untoward results and were all improved.

Case No. 1 showed entire relief from pleuresy.

The antigen prepared by the University, in no way differed in its reactions, from the Pasteur product.

This paper by Dr. Simpson has called to your attention the favorable reports, from European clinics, on an antigen for the treatment of tuberculosis, in selected cases and as the procedure is simple and the need for an effective cure so vital, I hope that a more extensive investigation to prove or disprove its worth may be carried out.

I believe that my experience has proven that the product produced by the University is equal in every way to the Pasteur antigen, which is very creditable, and I hope they will be able to keep on hand a sufficient supply that will make it available to any who may wish to use it.

Discussion by Dr. Spray.

In addition to the information conveyed by the paper just presented I would call your attention to the display of weight curve charts and to the animals themselves. Four animals, two treated (No. 2-24) and two controls (No. 1-16) are representative of the present condition. Note the plumpness, glossy coats and general appearance of well-being of the two treated animals, as contrasted with the rough coats and emaciation of the controls.

Observe also the guinea pig: this animal was infected on February 29th by inoculation with a tuberculosis urine. Within three weeks from inoculation the inguinals were distinctly palpable, and at five weeks the anterior node ruptured and discharged a caseopurulent material in which acid-fast bacilli were very numerous. At seven weeks the pig was very toxic and emaciated, sitting huddled in the cage. From the appearance of this animal it seemed that he would not survive beyond the usual period of eight to nine weeks, so we decided to treat him with the antigen to see if any reaction might be noted in this advanced stage of infection. Within 48 hours a distinct reduction in the size of the inguinal nodes was noted; the toxic condition was visibly improved, and a scab formed over the open fistula. Treatment has been continued twice a week and continual improvement has followed, until at present (just 12 weeks from date of infection) the pig is alive and normally active. Suppuration has ceased, and the inguinals have shrunk to dense fibrous masses scarcely one-fourth their size at the beginning of the treatment.

We fully realize that a test of a single guinea pig, or even of 15 rabbits, means little in the way of proof. We know that guinea pigs do occasionally recover spontan-

eously from tuberculosis infection. However, such retrogressions are very infrequent, and it would seem to us a marked coincidence if this should happen to be one of these infrequent cases.

Since in our attempt to corroborate the work of Negre and Boquet, using 1000 times their infecting dose for rabbits, we have visible evidence which we interpret favorably; and since local clinical reports (to be presented by others) seem also to support the claims of these investigators:

We feel justified in presenting this preliminary report of our study, and in offering this antigen to the physicians of West Virginia for trial.

We do not advocate this antigen as a "cure", but as a form of treatment for tuberculosis which may be deserving of trial, together with the routine measures with which it in no way conflicts—particularly in those refractory cases which have not responded to the usual treatment.

J. N. Simpson and R. S. Spray.

Note:—Since this report was submitted for publication control rabbit No. 16 died on 6/5, at 94 days, and No. 9 on 6/9 at 98 days. These animals lost from 450 to 500 grams weight in the last two weeks.

Rabbit No. 16 showed massive confluent and discrete tuberculous lesions in all lobes of both lungs; numerous discrete lesions in liver; two caseous retro-hepatic lymph nodes, and a caseous osteitis involving four ribs. The spleen and kidneys were normal.

Rabbit No. 9 showed massive confluent and discrete lesions in all lobes of both lungs, a caseous osteitis of one rib. All other organs appeared normal.

All treated rabbits continue to gain weight at the present date (6/10).

(1). Antigenotherapie de la Tuberculose. Negre, L., and Boquet, A.: Masson et Cie., Paris, 1927.

(2). Siebert, F. B.: Am. Journ. Physiol., 71, 621. 1925.

(3). Branham, S. E. and Humphreys, E. M.: Journ. Infect. Dis., 40, 516. 1927.

(4). Pinner, M.: Amer. Rev. Tuberc., 15, 714. 1927.

(5). Von Ruck, K.: Journ. Am. Med. Assoc., 58, 1505. 1912.

(6). Von Ruck, K., and Flack, R. E.: Med. Rec., 90, 1048. 1921.

(7). Crofton, W. M.: Journ. State Med., 31, 74. 1923.

(8). Long, E. R.: Journ. Prev. Med., 1, 31. 1926.

CHART I. ANTIGEN TREATED RABBITS.

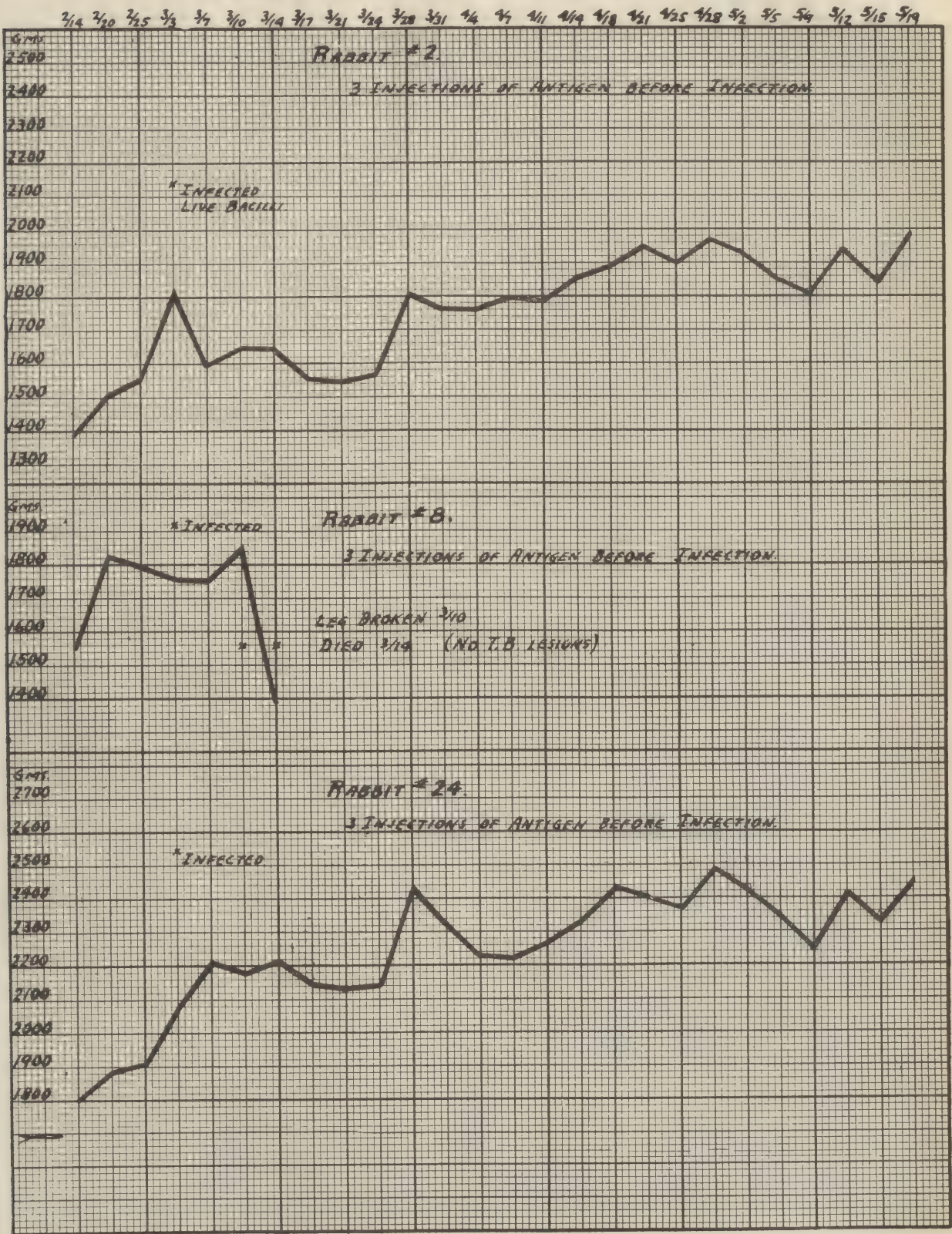


CHART 2. CONTROLS; NO ANTIGEN AT ALL.

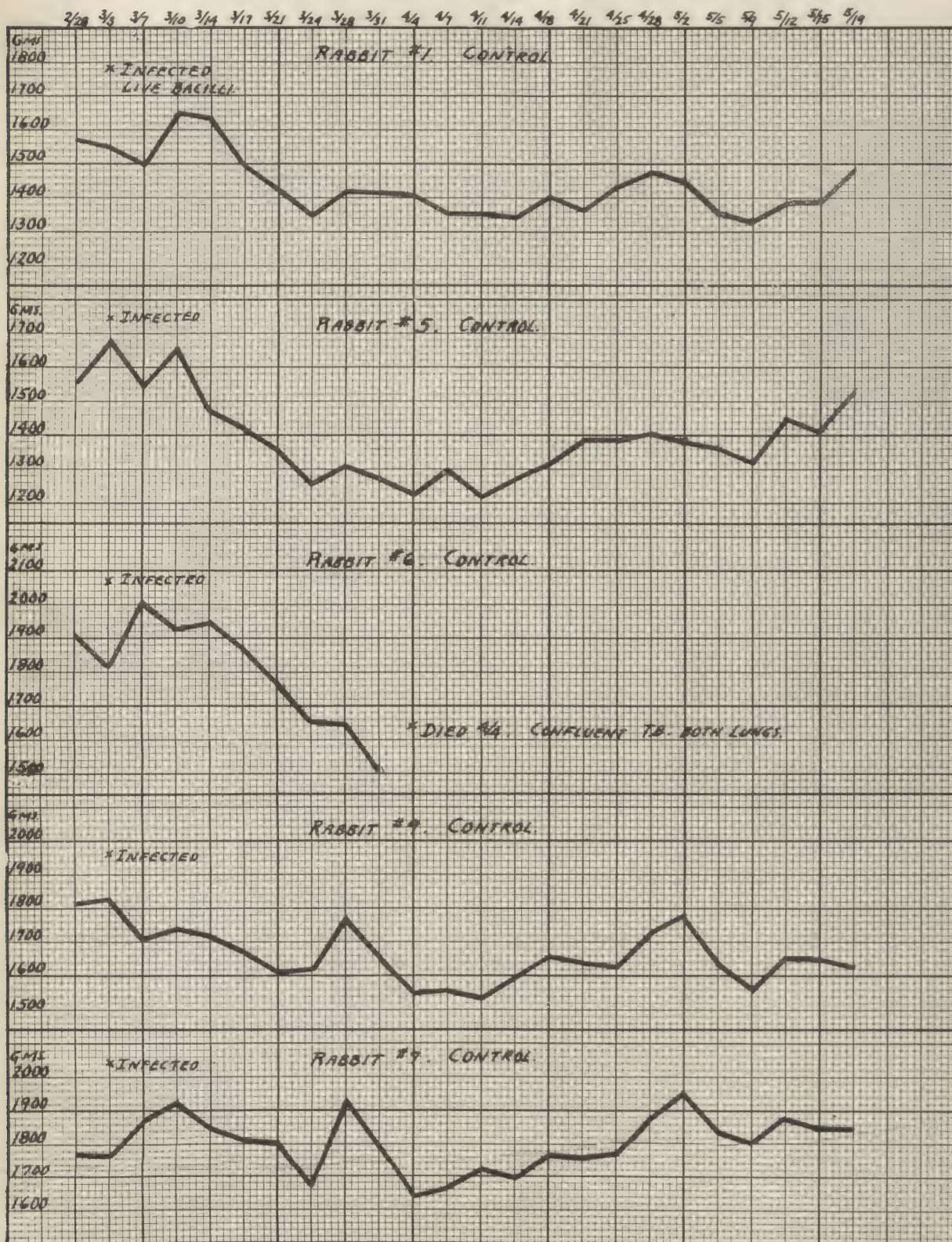


CHART 2. (CONTINUED) NO ANTIGEN AT ALL.

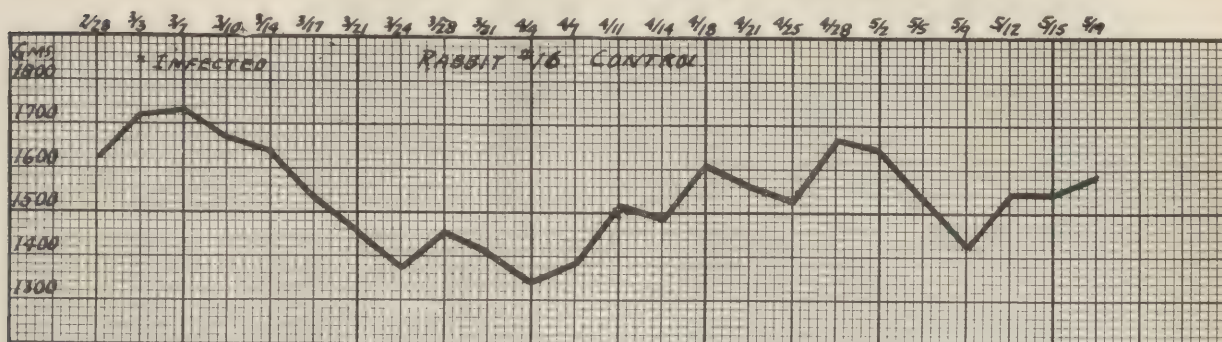


CHART 3. ANTIGEN TREATED AT INTERVALS SUBSEQUENT TO INFECTION.

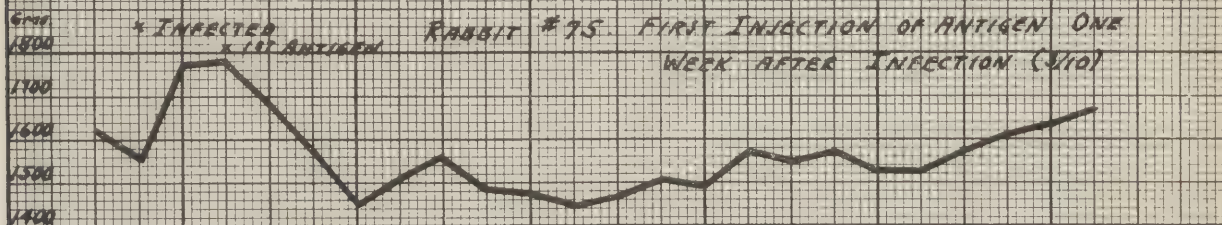
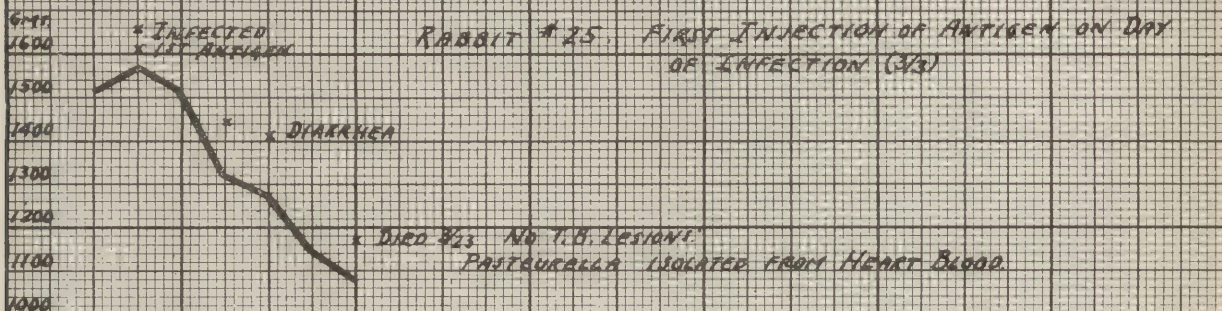
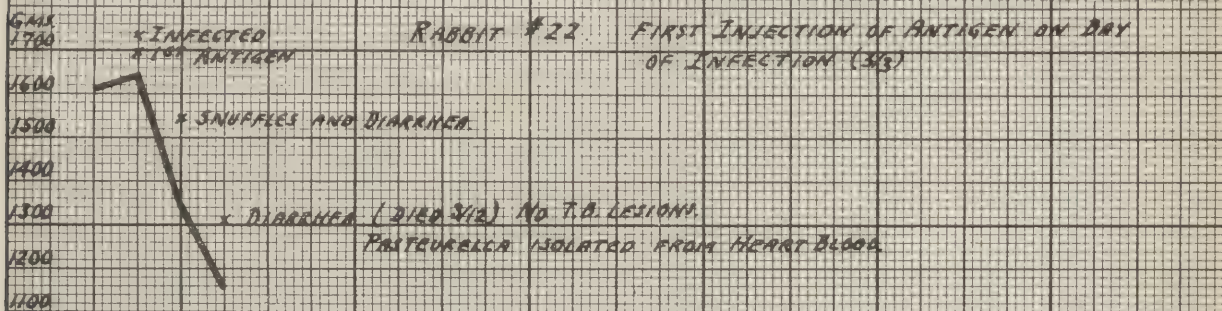
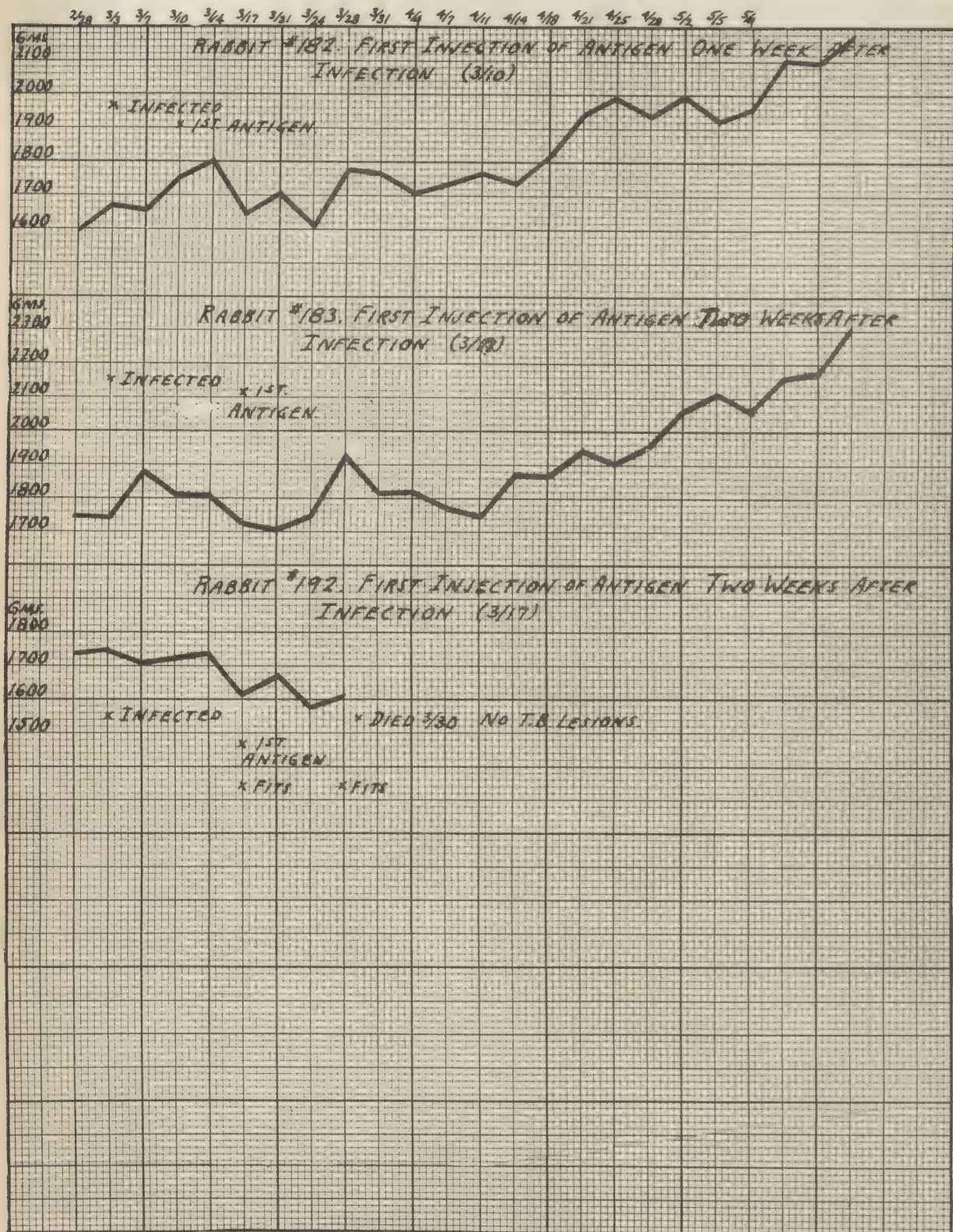


CHART 3.(CONTINUED) ANTIGEN TREATED SUBSEQUENT TO INFECTION.



CASE REPORTS

Secondary Syphilis Complicated by a Septic Mouth

By ARTHUR L. JONES, M.D.
and EDWARD C. ARMBRECHT, D.D.S.
Wheeling, W. Va.

WE BELIEVE the work of the physician and dentist is so closely related in the proper management of certain cases that the best results can be attained only by mutual cooperation between the two professions. Therefore, we present this case as a typical example illustrating the futility of trying to work alone.



The patient in question presented himself at the out-patient department of the Ohio Valley General Hospital and was referred to the Venereal Disease Department.

Chief Complaint: Sore mouth, gums and lips; pain and stiffness in right knee.

1. *Family History:* Father died from pulmonary tuberculosis, age 54; mother living and in fair health, age 59; one brother living and well.

2. *Personal History:* Essentially negative up to September, 1927, at which time he



was exposed to Venereal infection. In three weeks an indurated penile lesion developed, followed in due course of time by regional adenopathy, macular exanthem, sore throat, headache, malaise and mild poly-arthritis.

3. *Examination:* The patient is a thin, marasmic, cadaveric looking male, age 35. He is slightly stooped, has lusterless gray hair, wrinkled face, unkempt beard and appears to be about 60. Weight 82 pounds.

Pupils react to light and accommodation. Ears and nose negative.

Mouth: General condition extremely poor. Many mucous patches over buccal mucosa and sides of the tongue. Marked

ulcerative gingivitis. Tongue coated, floor of mouth normal. General condition of teeth very poor, showing marked caries and salivary calculus. Several retained roots. Thick purulent exudate around necks of teeth. Salivary glands palpable and tender. Breath very fetid. Lips bleeding and sore.

Neck: Thin and scrawny, adenopathy present in both anterior and posterior chain of cervicals.

Chest: Thin and bony but expansion good. Breath sounds easily hard; no rales. Heart normal in size and rhythm. No murmurs, thrills or adventitious sounds.

Abdomen: Scaphoid, no tumor masses palpable—no area of tenderness.

Extremities: Right leg flexed at approximately a right angle at the knee. Seems to be ankylosed. No swelling. Slight pain on deep pressure. Knee jerks and Romberg normal.

Lymphatic System: General adenopathy; posterior cervical epitrochlear and inguinal nodes discrete hard and painless.

Skin: Reddish brown pigmented areas, varying in size from a pea to that of a silver dollar, appear over the entire integument. No itching.

Clinical Diagnosis: Secondary syphilis with marked ulcerative stomatitis. Chronic arthritis.

Laboratory Data:

Date	R. B. C.	W. B. C.	Polys	L. Lymph.	S. Lymph.	Eosin	Hemoglobin	Blood Press.	Coag. Time	Weight
1-11-28	3,040,000	7900	75%	5	18	1	60	106/70	2½ Min.	82
1-20-28	Teeth Ext'd									
1-23-28	2,950,000	6200	69	4	24	2	52			
1-28-28	Trans fusion		500 cc blood	26						
2-3-28	3,860,000	5700	66	5		3	80			85
3-16-28	4,480,000	6000	65	4	30	1	95			
4-17-28	4,550,000	6300	57	2	39	1	100	110/70		100

(a) Blood wasserman Four plus.

(b) Microscopical examination by the darkfield on buccal secretions positive for *Treponema pallida* and the spirilla of Vincent.

(c) Urinalysis, negative.

(d) Blood pressure 106 - 74.

(e) Coagulation time 2½ minutes.

(f) Blood count—(See chart).

(g) X-ray study by Dr. C. H. Clovis, negative for any essential pathology of the knee, while the teeth showed areas of chronic infection about their apices.

Notice that the first blood count showed approximately three million red blood cells and 60% hemoglobin—anisocytosis and poikilocytosis present.

For one month previous to coming under observation, the patient had taken no solid food due to the extremely tender condition of the mouth. This, in part, accounts for the malnutrition and loss of weight.

Treatment: 6 gm. neo-arsphenamine every three days for eight doses. Potassium permanganate mouth wash 1-2000 every four hours.

Concentrated liquid food at frequent intervals.

He was then admitted to the hospital for operation. Under nitrous oxide ether anaesthesia all teeth were extracted and the gums sutured.

Results:—Recovery slow. Patient appearing weak and anemic. On the fifth day after operation transfusion of 500 cc blood by the direct method. This seemed to have a marked beneficial effect and from then on recovery was uneventful.

It is interesting to note that the affected knee become normal in function after a period of four weeks. There has been a gradual increase in weight after the patient left the hospital and he is now taking mercury and neo arsphenamine to the limit of his tolerance. He was also given iron and arsenic in the form of Bland's pill compound.

Artificial appliances were placed in the mouth on April 14th, 1928. The accompanying photographs and chart shows the external as well as the internal improvement.

Comment:—

1. Not to be considered an unusual case as it is a common thing to find a septic mouth in secondary Lues. It is highly desirable to examine for any mouth infection before the exhibition of mercury or bismuth. Therefore, we would suggest a routine mouth examination in all of these cases.

and the necessary measures adopted to either eliminate or prevent infection.

2. Malnourishment—due many times to the constant swallowing of infectious material found around the teeth and gums. Besides, these being very tender, usually prevents proper mastication of food.

3. Strict mouth hygiene essential to the successful termination of treatment.

4. Arthritis frequently follows mouth infection and may be misleading in these luecic cases.

5. Co-operation between physician and dentist absolutely essential to the welfare of the patient.

We wish to take this opportunity of thanking the resident physician, Dr. A. L. Osterman, for his splendid co-operation.

Bibliography:—

1. Modern clinical syphilology—page 204 and 307—Stokes.
2. Pathology of the mouth. Page 180-181, Moorehead and Dewey.
3. Pathology—Page 698, 703—MacCul-lum.
4. Essentials of oral surgery—Page 73-80—Blair & Ivy.

The Intravenous Administration of Sodium Tetra-Iodo-Phenolphthalein

(Preliminary Report)

WM. M. SHEPPE, M.D., F. A. C. P. and W. K. KALBFLEISCH, M.D.

Wheeling, W. Va.

IN 1924 Graham¹ first described the use of the halogenated phthaleins in visualization of the gall-bladder. There is at present marked divergence of opinion as to the proper route for the administration of the dyes. It is probable that the oral method is most widely used at present. The literature is replete with warnings against the use of the dye intravenously.² There is a universal fear of serious if not dangerous reactions. This fear is not only to be found in the literature. It has been voiced to me by

surgeons and radiologists from many different sections of the country.

We feel that it is probable that most roentgenologists appreciate the advantages of the intravenous technic, namely: accurate dosage; complete absorption and lack of gastro-intestinal irritation. The uniform control of the above factors must necessarily lead to a higher percentage of diagnostic accuracy. If the fear of dangerous reactions could be removed, the obvious superiority of the method should bring it into use.

From May, 1926, to November, 1926, the oral method as described by Graham was in use at the Wheeling Clinic. At this time it was discontinued due to the rather consistent production of nausea and vomiting. In addition absorption of the dye was often poor, making it exceedingly difficult to draw conclusions from the results.

After the discontinuance of the oral method and the adoption of the intravenous technic, we encountered several severe reactions (five in all). To prevent the continuation of such reactions, the method which Titus³ has described for the administration of glucose was employed with certain modifications. The essentials of the technic are as follows :

Dye: Sodium tetra-iodo-phenolphthalein dissolved in boiling water bath for 15 minutes. No alkalization employed. Resulting solution filtered and diluted so that 140 c.cs. contains 3.5 gm. of this dye.

Water: Fresh, doubly distilled, filtered water.

Apparatus: Gravity, double cylinder of Salvorsan type holding 300 c.cs., graduated in 5 c.c. divisions. Special dye cylinders are kept for this purpose only. Tubing especially prepared for intravenous use. Needle, 18 gauge. The apparatus is supported by an upright which may be raised or lowered at will to control the rate of flow. A pan or beaker containing hot water.

Dosage: 100 to 125 lbs.—2gms. 125 to 150 lbs.—2.5 gms. 150 to 200 lbs.—3 gms.

Administration: Not faster than 6 c.cs. per minute. Rate of flow controlled by raising and lowering cylinders.

Solution kept at approximately body temperature by coil of rubber tubing resting in

* From the Medical and Radiological Division of the Wheeling Clinic, Wheeling, W. Va.

pan of hot water as described by Titus³. The dye is always preceded and followed by saline. Patient kept under observation for fifteen minutes following administration.

We have not found it necessary to employ the measuring burette or the thermometer used by Titus.

While each step in the technic is of great importance we feel that the time of administration and the temperature of the solution at the needle (not in the cylinder) are the two main factors.

Results: We have used the method described above in the last 200 patients, all of whom were ambulant. This group includes individuals with very high and very low blood pressures. The presence or absence of the following signs and symptoms has been noted: Flushing of face and neck; nausea; vomiting; vertigo; marked increase or decrease of pulse rate; arrhythmia of pulse; marked increase or decrease of blood pressure. Not a single patient in the series has exhibited any one of the above signs or symptoms. In other words no semblance of a reaction either immediate or remote has occurred.

Conclusion: A series of 200 intravenous injections of sodium tetra-iodo-phenolphthalein is reported, none of which produced the slightest local or constitutional reaction.

We feel that many if not all the reactions reported from the intravenous use of sodium tetra-iodo-phenolphthalein are caused by faulty technic of administration rather than by the drug itself. The slow administration of the dilute solution maintained at body temperature should entirely obviate such reactions.

Bibliography

1. Graham, E. A. and Cole, W. H.—J. A. M. A. LXXXII, 613 February 23, 1924.
2. Feldman, M. *Annals Int. Med.* Vol. I, No. 2, Aug. 1927 P. 108.
3. Titus, Paul and Dodds, Paul, *Amer. J. Obs. and Gyn.* Vol. XIV, No. 2, Aug., 1927.

Typhoid Specimens Wanted

The State Hygienic Laboratory is anxious to increase the volume of typhoid culture

work. It is felt that this is important in view of the definite effort now on foot to reduce the typhoid morbidity as well as mortality in the state.

Since thousands of cases of this disease occur in the state yearly, and a large proportion become carriers, a definite effort to detect these will prove of great value.

It is particularly important that culture work be done on all cases to determine whether or not a patient is entirely free from the disease before being released. Physicians are requested to send in as many urine and feces specimens as possible from their typhoid cases for free examination. Blood cultures are not of so much value as they are only positive during the first eight to ten days of the disease. Widal reaction is of little value in diagnosis unless followed throughout the course of the disease.

The State Hygienic Laboratory is located at 1902 Washington St., Charleston, West Virginia.

Secretarial Duties

At the meeting of the council of the West Virginia Medical Association held at Fairmont on the morning of May 24, it was suggested that all secretaries of component societies be requested to invite their district councillors to attend at least one meeting of their county society during any given year. It was pointed out that many of the councillors failed to visit the component groups in their districts because they were not invited to do so.

The suggestion made by the councillors seems to have considerable merit. Each councillor is required by the constitution of the association to visit each component society in his district at least once during each calendar year. An invitation from the secretary of a county society will not only fix a councillor's attention upon his duties as such, but will make his visit far more pleasant and agreeable. If the component society secretaries will bear this fact in mind, it will undoubtedly lead to closer harmony and understanding in each councillor district.

THE WEST VIRGINIA MEDICAL JOURNAL

JAMES R. BLOSS, *Editor-in-Chief* - - - - - Huntington

...ASSOCIATE EDITORS...

J. HOWARD ANDERSON
Marytown

WALTER E. VEST
Huntington

C. A. RAY
Charleston

HARRY M. HALL
Wheeling

THE JOURNAL issued on the first of each month. Entered as second-class matter, January 1, 1926. Acceptants for mailing at special rate of postage provided for in Section 1103, Act of October 3, 1917. Authorized July 24, 1919.

Subscription to Members.....	\$2.00 Per Year
Subscription to Non-Members.....	\$3.50 Per Year
Single Copies.....	50 Cents

OFFICERS

President:
C. A. RAY.....Charleston

First Vice-President:
D. G. PRESTON.....Lewisburg

Second Vice-President:
E. L. ARMBRECHT.....Wheeling

Third Vice-President:
W. C. SWANN.....Huntington

Executive Secretary:
MR. JOE W. SAVAGE.....Charleston

Treasurer:
T. MAXFIELD BARBER.....Charleston

Delegates to A. M. A.:
JAMES R. BLOSS (1927).....Huntington
HENRI P. LINSZ (1927-28).....Wheeling

Alternates:
A. A. SHAWKEY (1927).....Charleston
HARRY M. HALL (1927-28).....Wheeling

COUNCILLORS

Chairman of the Council for 1928:
R. H. DUNN.....South Charleston

First District:
H. R. JOHNSON (1-year term).....Fairmont
C. G. MORGAN (2-year term).....Moundsville

Second District:
C. H. MAXWELL (1-year term).....Morgantown
C. H. HALL (2-year term).....Elkins

Third District:
JOHN FOLK (1-year term).....Bridgeport
I. D. COLE (2-year term).....Clarksburg

Fourth District:
J. E. RADER (1-year term).....Huntington
W. E. VEST (2-year term).....Huntington

Fifth District:
J. HOWARD ANDERSON (1-year term).....Marytown
H. G. STEELE (2-year term).....Bluefield

Sixth District:
R. H. DUNN (1-year term).....South Charleston
H. A. WALKUP (2-year term).....Mt. Hope

¶ All original articles for THE JOURNAL must be made to it exclusively. Communications and items of general interest to the profession are invited from all parts of the state. Notices of deaths, removals from the state, changes of location, etc., are requested.

¶ Our readers are requested to send marked copies of local newspapers containing matters of interest to members of the medical profession. Name of sender should be given.

CONTRIBUTIONS TYPEWRITTEN

¶ Contract with present printer specifies all articles, communications, etc., MUST BE TYPED.

ADVERTISEMENTS

¶ Advertising forms will go to press not later than the tenth of each month. All advertisements must conform to the standard established by the Council of Pharmacy and Chemistry of the A. M. A.

WOMAN'S AUXILIARY

Mrs. R. V. Shanklin, Gary, President; Mrs. T. H. Harris, Parkersburg, vice-president; Mrs. W. C. Swann, Huntington, secretary; Mrs. W. D. Simmons, Slab Fork, treasurer.

Councillors

Mrs. C. G. Morgan, Moundsville, first district; Mrs. Ralph Maxwell, Morgantown, second district; Mrs. H. D. Price, Parkersburg, third district; Mrs. J. R. Bloss, Huntington, fourth district; Mrs. A. G. Rutherford, Welch, fifth district; Mrs. E. S. DePuy, Beckley, sixth district.

Delegates to Woman's Auxiliary of A. M. A.

Mrs. R. V. Shanklin, Gary; Mrs. B. S. Preston, Charleston. Alternates—Mrs. George Jeffers, Parkersburg; Mrs. W. B. Scherr, Morgantown.

STANDING COMMITTEES

Medical Defense Committee

C. G. Morgan, Moundsville, Chairman; H. A. Walkup, Mt. Hope; H. G. Steele, Bluefield.

Committee on Scientific Work

R. U. Drinkard, Wheeling, chairman; O. B. Biern, Huntington; A. H. Hoge, Bluefield.

Public Policy and Legislative Committee

R. A. Ireland, Charleston, chairman; R. H. Walker, Charleston; James McClung, Richwood; C. R. Ogden, Clarksburg, D. A. MacGregor, Wheeling.

Committee on Medical Education

John N. Simpson, Morgantown, chairman; W. T. Henshaw, Charleston; W. S. Fulton, Wheeling.

Committee on Professional Relations

John R. Shultz, Charleston, chairman, (1-year term); A. G. Rutherford, Welch, (2-year term); W. R. Goff, Parkersburg, (3-year term); Hugh G. Nicholson, Charleston, (4-year term); E. P. Smith, Fairmont, (5-year term)

Workman's Compensation Committee

W. A. MacMillan, Charleston, chairman; J. Ross Hunter, Charleston; R. H. Walker, Charleston.

Committee on Public Health

David Littlejohn, Charleston, chairman; John Thames, Charleston; Will McLain, Wheeling.

Surgical Section

Wade H. St. Clair, Bluefield, chairman; John E. Cannaday, Charleston, secretary.

Eye, Ear, Nose and Throat Section

E. C. Hartman, Parkersburg, chairman; I. D. Cole, Clarksburg, secretary.

Hospital Association Officers

H. F. Spillers, Wheeling, president; L. W. Lawson, Logan, president-elect; J. E. Wilson, Clarksburg, first vice-president; R. A. Ireland, Charleston, second vice-president; J. S. Turk, Wheeling, treasurer.

GENERAL NEWS

Program Work Started

Dr. O. B. Biern, of Huntington, chairman of the committee on scientific work for the Martinsburg meeting, has already started to work on the 1929 program. He is working with Dr. A. G. Rutherford, of Welch, and Dr. G. H. Barksdale, of Charleston, the other two members of the committee. A called meeting of the committee will probably be held in the near future.

Dr. Biern has requested that an announcement be made to the effect that the committee will welcome any and all suggestions relative to the 1929 program. The committee, Dr. Biern stated, is anxious to arrange a program that will appeal to every member of the association. In arranging such a program, he pointed out that it was essential for the committee to know the viewpoint of as many members as possible and urged all doctors interested in next year's program to communicate with him in the near future.

Gilman R. Davis, M. D.

Dr. Gilman R. Davis, of 1213 Virginia street, Charleston, died on Monday, June 11, at his residence from injuries received in an automobile accident two weeks earlier. Dr. Davis was 74 years of age at the time of his death and for several years had been an honorary member of the West Virginia State Medical Association.

Dr. Davis graduated from the Miami Medical College of Cincinnati in 1878 and later attended the New York Homeopathic Medical College. He was licensed to practice in West Virginia in 1904 and a short time later affiliated with the Kanawha Medical Society, carrying his membership until the time of his death. Dr. Davis leaves a host of friends and fellow practitioners throughout West Virginia to mourn his death.

Correction

In the June issue of the West Virginia Medical Journal it was stated that Dr. J. W.

Duff, of New Martinsville, had been elected as first vice president of the state association and that Dr. B. F. Bone, of Moundsville, had been elected third vice president. Dr. Bone was chosen as first vice president at the Fairmont meeting and Dr. Duff was chosen as third vice president.

It was also stated in the June Journal that Dr. Harry M. Hall, of Wheeling, newly elected president of the West Virginia State Medical Association, was the present head of the Ohio Valley General Hospital of Wheeling. Dr. Hall is a former president of the hospital staff. The position is now held by Dr. E. L. Armbricht, of Wheeling.

Group Insurance

All members of the Association who are interested in group life insurance and who have not yet sent in the questionnaire mailed out on June 11 are urged to do so at once, according to Dr. J. Ross Hunter, of Charleston, chairman of the insurance committee. Dr. Hunter stated that the master policy would probably be issued to the association within the next two or three weeks and that all members who applied for the group insurance after the master policy was issued would be required to file a health certificate with their application.

The group life insurance for members of the West Virginia State Medical Association is now being worked out by the American National Insurance Company of Galveston, Texas. While the rates have not yet been settled, it is understood that they will be in the neighborhood of \$12 per thousand. More than 200 doctors have already sent in the questionnaires mailed out in June. The premium will be based upon the average age of all the participants.

According to the plan now being worked out, the American National proposes to write a \$3,000.00 renewable term policy on all members under 65 years of age without examination. The policy will also include permanent and total disability benefits.

TRANSACTIONS

SIXTY-FIRST ANNUAL SESSION, WEST VIRGINIA STATE MEDICAL ASSOCIATION

Fairmont, W. Va., May 22, 23, 24, 1928.

Tuesday, May 22, 1928

The Sixty-first annual meeting of the West Virginia State Medical Association was called to order on May 22 in the auditorium of the Fairmont Y. M. C. A. building by Dr. C. A. Ray, president. The address of welcome on behalf of the city of Fairmont was delivered by Mayor Martin while Dr. C. M. Ramage, president of the Marion County Medical society, delivered the address of welcome on behalf of the local society. The response was made by Dr. J. R. Shultz, of Charleston.

Dr. Ray then called upon Mrs. A. T. McCormack, of Louisville, Ky., president of the Women's Auxiliary of the Southern Medical Association, who spoke briefly to the members present.

The scientific paper of the morning session was given by Dr. O. P. Kimball, of Cleveland, O., on "Science and Safety in the Prevention of Goiter." This paper was discussed by Dr. David Littlejohn, of Charleston; Dr. R. H. Paden, of Parkersburg; Dr. W. S. Fulton, of Wheeling; Dr. W. R. Goff, of Parkersburg; Dr. J. R. Shultz, of Charleston; Dr. R. B. Bailey, of Wheeling; Dr. B. S. Preston, of Charleston; Dr. R. K. Buford, of Charleston; Dr. R. A. Ireland, of Charleston; Dr. F. T. Foard, of Charleston, and Dr. W. A. MacMillan, of Charleston.

Afternoon Session.

The session on the afternoon of May 22 was opened with a paper by Dr. Howard Lilienthal, of New York City, on "The Surgical Treatment of Tuberculosis." The paper was discussed by Dr. J. G. Pettit, of Hopedmont; Dr. R. B. Bailey, of Wheeling, and Dr. G. F. Evans, of Hopedmont.

Dr. Fred W. Rankin, of the Mayo Clinic, Rochester, Minn., then gave a paper on "Cancer of the Rectum," which was discussed by

Dr. W. S. Fulton, of Wheeling. Following Dr. Rankin's paper, Dr. Ray called upon Dr. A. T. Macormick, of Louisville, Ky., secretary of the Kentucky State Medical Association, who spoke upon the work of his state society.

The next paper was "The Diagnosis and Treatment of Surgical Lesions of the Stomach," by Dr. Dean Lewis, of Baltimore, Md. This paper was discussed by Dr. R. J. Reed, of Wheeling; Dr. J. E. Cannaday, of Charleston; Dr. D. M. Aikman, of Wheeling; Dr. H. M. Hall, of Wheeling.

The afternoon session was concluded by Dr. William B. Porter, of Richmond, Va., who gave a paper on "Rheumatic Fever." The discussion was carried on by Dr. O. B. Biern, of Huntington; Dr. W. B. Stevens, of Eckman; Dr. J. O. Rankin, of Wheeling, and Dr. B. F. Brown, of Huntington.

Evening Session.

On Tuesday evening, May 22, the president's address was delivered by Dr. C. A. Ray, the oration on surgery by Dr. Albert H. Frieberg, of Cincinnati, and the oration on medicine by Dr. Harry M. Hall, of Wheeling.

Wednesday, May 23, 1928

Section on Internal Medicine.

On Wednesday morning, May 23, the three special sectional meetings were held. The section on internal medicine was opened with a paper on "Lung Abscess With Treatment by Artificial Pneumothorax," by Dr. Boyd F. Brown, of Huntington, and discussed by Dr. G. H. Barksdale, of Charleston; Dr. W. E. Vest, of Huntington, and Dr. W. C. Swann, of Huntington. Dr. Luther C. Davis, of Fairmont, then gave a paper on "My Experience With the Electrocardiograph," which was discussed by Dr. M. C. Borman, of Montgomery, Dr. W. C. Swann, of Huntington, and Dr. E.

P. Joslin, of Boston, Mass. The topic of the next paper was "The Transfusion of Blood," by Dr. C. L. Woodbridge, of Montgomery, and discussed by Dr. W. M. Sheppe, of Wheeling; Dr. G. R. Maxwell, of Morgantown; Dr. A. H. Hoge, of Bluefield; Dr. C. H. Maxwell, of Morgantown; Dr. B. S. Preston, of Charleston, and Dr. H. A. Walkup, of Mt. Hope. The section on internal medicine was concluded with a paper entitled, "An Antigen for Treatment of Tuberculosis," read by Dr. John N. Simpson, Dean of the school of medicine of West Virginia University. This paper was discussed by Dr. C. H. Hall, of Elkins; Dr. R. S. Spray, of Morgantown, and Dr. W. C. Swann, of Huntington.

Surgical Section.

The surgical section was opened with "A Clinical and Pathological Study of Goiter," by Dr. Robert King Buford, of Charleston, and discussed by Dr. H. L. Robertson, of Charleston; Dr. C. B. Pride, of Morgantown, and Dr. W. R. Goff, of Parkersburg. Dr. R. D. Gill, of Wheeling then gave a paper on "Benign Prostatic Hypertrophy," which was discussed by Dr. Ray M. Bobbitt, of Huntington; Dr. G. G. Irwin, of Charleston, and Dr. T. Judd McBee, of Morgantown. The third paper was presented by Dr. W. A. Quimby, of Wheeling, on "Chronic Pancreatitis and its Relation to Certain Skin Diseases," discussed by Dr. Howard Phillips, of Wheeling. Dr. C. J. Reynolds, of Bluefield, then gave a paper on "The Relation Between Endocervicitis and Strictured Ureters," which was discussed by Dr. O. D. Barker, of Parkersburg, Dr. Thomas L. Harris, of Parkersburg, and Dr. Charles F. Hicks, of Welch. Dr. Willis C. Campbell, of Memphis, Tenn., concluded the program with a paper on "Arthroplasty of the Knee," which was discussed by Dr. A. S. Jones, of Huntington; Dr. E. Bennette Henson, of Charleston, and Dr. J. O. Rankin, of Wheeling.

Eye, Ear, Nose and Throat Section.

The Eye, Ear, Nose and Throat section was opened with a paper on "The Use of Iodized Oil in the Diagnosis and Prognosis of Chronic Maxillary Sinusitis," by Dr. E. L. Jones, of Wheeling. This paper was discussed by Dr. S. S. Hall, of Buckhannon; Dr.

William C. Mithoefer, of Cincinnati, O., and Dr. F. C. Scanlon, of Morgantown. The next paper was by Dr. S. S. Hall, of Buckhannon, on "Acute Surgical Mastoiditis," which was discussed by Dr. E. L. Jones, of Wheeling; Dr. I. D. Cole, of Clarksburg; Dr. William C. Mithoefer, of Cincinnati, O.; Dr. W. S. Sheppard, of Charleston; Dr. F. C. Scanlon, of Morgantown, and Dr. H. R. Johnson, of Fairmont. The next paper was on "Management of Intraocular Foreign Bodies," by Dr. Edward Stieren, of Pittsburg. Discussion by Dr. Albert K. Hoge, of Wheeling. Dr. W. S. Shepherd, of Charleston, then presented a paper on "Myriatics and Miotics in Eye Ground Examination," which was discussed by Dr. William T. Booher, of Wellsburg; Dr. E. C. Hartman, of Clarksburg; Dr. Albert K. Hoge, of Wheeling; Dr. H. R. Johnson, of Fairmont; Dr. I. D. Cole, of Clarksburg, and Dr. F. C. Scanlon, of Morgantown. Dr. R. A. Tomassene, of Wheeling, then presented a paper on "Parinaud's Conjunctivitis," which was discussed by Dr. E. L. Jones, of Wheeling. Dr. E. C. Hartman, of Parkersburg, then gave a paper on "Round Cell Sarcoma of Tonsil," which was discussed by Dr. William C. Mithoefer, of Cincinnati, O., and Dr. E. L. Jones, of Wheeling. The program was concluded with a paper on "Recent Views Concerning the Nasal Accessory Sinuses," by Dr. Mithoefer. Those discussing this paper were Dr. F. C. Scanlon, of Morgantown; Dr. Albert K. Hoge, of Wheeling; Dr. E. C. Hartman, of Parkersburg, and Dr. E. L. Jones, of Wheeling.

Afternoon Session.

On Wednesday afternoon, May 23, the general session was opened with a paper on "Acute Carditis," by Dr. John W. Gilmore, of Wheeling, and discussed by Dr. H. A. Walkup, of Mt. Hope.

Dr. Curtis Burnam, of Baltimore, Md., then presented a paper on "Lymphosarcoma and Hodgkin's Diseases," which was discussed by Dr. G. H. Barksdale, of Charleston. The next paper was presented by Dr. Elliott P. Joslin, of Boston, Mass., on the subject, "The Treatment of Diabetes Mellitus." It was discussed by Dr. A. H. Hoge, of Bluefield; Dr. W. E. Vest, of Huntington; Dr. R. C. Hood, of Clarksburg; Dr. O. B. Biern, of Huntington;

Dr. G. H. Barksdale, of Charleston, and Dr. R. J. Snider, of Wheeling.

Dr. Martin E. Rehfuß, of Philadelphia, then gave a paper on "The Stomach and the General Practitioner." This paper was not discussed, due to the illness of Dr. Rehfuß when the paper was presented. The afternoon session was concluded with "The Treatment of Syphilis," by Dr. Carroll S. Wright, of Philadelphia, and discussed by Dr. Howard T. Phillips, of Wheeling; Dr. B. S. Brake, of Clarksburg; Dr. W. M. Sheppe, of Wheeling, and Dr. H. A. Walkup, of Mt. Hope.

Convention Banquet.

The annual convention banquet was held at 6:30 o'clock on Wednesday evening, May 23, with Dr. S. H. D. Wise, of Parkersburg, toastmaster, and United States Senator M. M. Neely, of Fairmont, as the principal speaker.

Thursday, May 24, 1928.

The Thursday morning session was opened by Dr. James Mitchell, of Washington, D. C., with a paper on "The Treatment of Certain Surgical Infections." This paper was discussed by Dr. A. P. Butt, of Elkins; Dr. B. I. Golden, of Elkins; Dr. O. J. Henderson, of Montgomery, and Dr. J. R. Shultz, of Charleston. Dr. Mitchell was followed by Dr. J. T. Thornton, of Wheeling, who delivered a paper on "Congenital Hypertrophic Pyloric Stenosis." Those discussing this paper were Dr. C. L. Holland, of Fairmont; Dr. James Mitchell, of Washington, D. C., and Dr. B. S. Brake, of Clarksburg. Dr. C. B. Morton, of the University of Virginia, concluded the program with a paper on "Experimental Production of Peptic Ulcer," discussed by Dr. M. C. Borman, of Montgomery.

Council Meetings

Monday, May 21, 1928.

The Council of the West Virginia State Medical Association met in the Fairmont Y. M. C. A., at 3:30 p. m., and was called to order by the chairman, R. H. Dunn.

The members of the Council present were Drs. C. H. Maxwell, Walter E. Vest, C. G. Morgan, J. Howard Anderson, H. A. Walkup, C. H. Hall, J. E. Rader, H. R. Johnson, I. D. Cole and John Folk. Dr. H. G. Steele

was absent due to illness. Others present were Dr. C. A. Ray, president of the Association; Dr. T. M. Barber, treasurer; Dr. W. P. Black, chairman of the Permanent Home Committee, and Mr. Joe W. Savage, executive secretary.

Dr. Vest's motion that the minutes of the last meeting be approved as published in the Journal, was carried by the Council.

The next item of business was the report of the executive secretary, upon motion of Dr. Vest, was accepted and Mr. Savage complimented upon his splendid work during the past year.

Dr. Black was then called upon to read the report of the Permanent Home Committee. In the discussion that followed, Dr. Anderson stated that he wished to thank Dr. Black for the careful manner in which he had gone into the subject. He heartily endorsed the suggestion of the Committee that a building fund be started and stated that the sooner we get at it the sooner we will be able to have the building. Upon motion of Dr. Anderson the report was accepted by the council.

Dr. Vest thanked Dr. Black for the fine report, but stated that the resolution to start a building fund was untimely at the present time. He stated that the Journal has had a hard time and is just now getting on its feet. He was opposed to any resolution to appropriate Journal funds for building purposes just now.

Upon motion of Dr. Anderson the Council decided to lay the resolution on the table for future consideration.

Dr. Vest, in making the report of the Publication Committee, stated that Dr. Bloss sent his regrets upon not being able to attend the Council meeting, and that he had not given him a written report. The Publication Committee feels that it has issued a better journal this year, mostly due to Dr. Ray and Mr. Savage. There are more funds this year and the journal is taking its place among the other state journals. Dr. Vest also stated that wherever he went he heard something about the Journal from West Virginia. It has made better strides than ever before.

The Council called on Dr. Ray, who stat-

ed that the journal spoke for itself. He said that as associate editor he had done his best. At the meeting of the editors of the state journals in Chicago last November Dr. Olin West, Secretary of the American Medical Association, complimented the West Virginia Medical Journal and announced that our journal stood high in state publications. The advertisements come largely through the Cooperative Medical Advertising Bureau. Many withdraw from other journals to keep their advertisement in the West Virginia Medical Journal. There has been some criticism of course, but it is helpful to the Journal.

Dr. Vest told the Council the Publication Committee had been invited to join the American Medical Editors' Association, and the Council gave its stamp of approval.

The report of Dr. John V. Ray, Attorney for the Association, to the Special Committee was then read. Upon motion of Dr. Anderson the report was accepted with thanks. The report set forth that approximately \$4,000 had been collected from the Nicholson estate and turned over to the association. Upon motion of Dr. Walkup, it was decided to continue to carry the insurance policy of \$25,000 upon the life of Dr. Nicholson.

Next in order of business were the reports of the councillor districts.

First district—upper tier; Dr. Morgan:

The Association's business is going along well in the first district. In Hancock County all the members are delinquent, but the secretary of that society promised me that the dues for the members would be sent to the executive secretary's office shortly. Brooke County is in excellent shape, with eleven members and two delinquents. Marshall County is becoming a closely knit organization and we have splendid meetings. We have 22 paid up members and 6 delinquents at the present time. As for Ohio County, you can always expect it to be 100%, even though at the present, they have 80 members with 14 delinquents."

Dr. Johnson—lower tier—"Marion County has held her own this year, with the same number of members as last year, 50. There are 11 delinquent members. Taylor County, although it has been weak in past years, has

come to the front this year with 100% paid up membership, for 10 members. Tyler-Wetzel is a society in name only. There are very few doctors there, and part of them belong to the Marshall County Society.

Second District—Dr. Maxwell:

The Eastern Panhandle Society has taken greater interest in medical meetings than for several years. The membership is 11 larger this year than last. They have four meetings a year and their programs are good. They have 20 members this year with 1 delinquent, as against 9 last year with 9 delinquents. The outlook is better for the society.

Grant-Hardy-Hampshire-Mineral is doing well, considering the large area it includes. It is difficult to get a full attendance but the meetings are good. They have 26 members with 2 delinquents; last year there were the same number of paid members with 3 delinquents.

Barbour-Randolph-Tucker covers the largest area of any in the state. It has almost one-fifth of the total area of the state. The communities of this society are many and far between. It is a difficult job to keep the members in line and keep up concentrated interest. This difficult work is in the hands of the gray haired veteran, Dr. J. C. Irons, whose indefatigable efforts keep the society from losing interest and disintegrating. They have meetings every two months, and the meetings are of a high scientific worth, although not largely attended. They have 24 paid members, as against 25 last year. There are 5 delinquents in spite of the secretaries persistent efforts to hold them in line.

Preston is in the 100% column. Every legalized practitioner in the county is a member of the society. They have four regular meetings a year, and are well attended. The interest in the society is well maintained. They have 21 members. Last year there were overtures made to join with the Monongalia County Society but it was not consummated.

Dr. W. F. Bailey, of Terra Alta, is defending a malpractice suit now pending in the Preston County Court.

The Monongalia County Society is in

good condition, although there are 3 delinquents out of 48 members. There have been several prominent speakers at our recent meetings and our meetings are well attended. There are 8 doctors who do not belong to the society.

As a whole, the second district has had a good year, and the present year promises better things." Drs. C. H. Maxwell and C. H. Hall.

Third District.—"We are pleased to report that conditions in the third district are more favorable this year than they were last year at this time. Two county societies in our district have 100% membership, Lewis and Doddridge, who were the first to report a full paid up membership. Doddridge has 4 members, Lewis 15; Central West Virginia has 25 paid members with 5 delinquents; Harrison has 72 paid members with 4 delinquents. The societies in our district are active and report good attendance." Drs. John Folk and I. D. Cole.

Fourth District.—Dr. Vest: "There are three societies now functioning, one more than last year, the Wayne County Society having been organized early this year. The Cabell County Medical Society had 65 paid memberships, a gain of two over the same date in 1927. There were 17 delinquents, four less than on corresponding date last year. Parkersburg Academy had a paid membership of 55 against 61 the year previous, showing a loss of 6. The delinquents numbered 12, whereas on the same date in 1927, they numbered 6, an increase of 6. The Wayne County Society, organized this year, has a total paid membership of ten with no delinquents. The total paid membership in the district is 130 as compared with 124 the same date last year. The delinquents number 29, an increase of 2. We comment again on the great unorganized county of Mason. Such efforts as have been put forth there have been unfruitful, but lack of success should not deter us. Further work here ought to be done." Drs. Walter E. Vest and Joseph E. Rader.

Fifth District—Dr. Anderson: : "As Councillors for the fifth district, we bring you greetings from the county societies of Logan, Mercer, McDowell, Mingo and Sum-

mers Counties, and have the honor to report that all the societies within our borders are thriving and doing excellent work.

Logan County Society, under the guiding hand of Secretary P. B. Wingfield has shown very commendable activity and rejuvenation. During 1927 they permitted their activities to sink to a low ebb, closing the year with a paid membership of 28 and a delinquency of 14, but after a personal visit from our worthy President, Dr. Ray, they "got busy", and to date they have a paid membership of 44 with no delinquents. Their meetings have been enthusiastic and worth while.

"Mercer County Society, during the absence of Secretary Steele, is being ably handled by Assistant Secretary Andrew Amick. At the close of 1927 they had a paid membership of 50 and 3 delinquent members. To date they have a paid membership of 54 with only one delinquent member. They have had excellent programs for their meetings."

"McDowell County under the tutelage of Secretary Rutherford, has enjoyed one of the best years of her history. We have had enthusiastic and well-attended meetings. The membership shows 42 paid members in 1927 and 45 thus far in 1928; 8 delinquent members in 1927 and 9 at the present time this year.

"Mingo County is thriving under the leadership of Dr. Fred Ben Quincy. The paid up membership for 1927 was 19 with 3 delinquents. The membership now is 22, with 4 delinquents.

"Summers County is progressing along the even tenor of its way, with 12 paid members for 1927 and 11 for 1928.

"In summary, we report 176 paid members for 1928 and 151 in 1927, with only 16 delinquents in 1928 compared with 28 in 1927. These figures together with the interest shown in the meetings of the societies speak well for the fifth district of which we are justly proud. Drs. Anderson and Steele.

Sixth District—Dr. H. A. Walkup: "Fayette County Society has 41 members this year as compared to 46 paid members for this time last year; 14 delinquents as compared with 7 last year. Several of the members have moved out of the state. We have lively and frequent meetings in our county.

Greenbrier Valley has 24 paid members and 6 delinquents, and shows unusual interest for a society that is so widely scattered. Kanawha County deserves much praise as they have 120 paid members this year compared to 92 at this time last year. They have only 5 delinquents as against 26 in May last year. Raleigh County has 37 members in 1928 with 6 delinquents. The outstanding society in our district is the Kanawha Medical Society, which has meetings twice a month, and their members are showing unusual interest in the Association. Drs. H. A. Walkup and R. H. Dunn.

Dr. T. M. Barber, Treasurer of the Association, then gave his report for the year. Upon Dr. Vest's motion the report was accepted with thanks.

Chairman Dunn appointed Drs. Morgan, Anderson and Vest as the auditing committee to audit the executive secretary's and treasurer's report and to report later.

Report on Wayne County Medical Society and consideration of its application for a charter was taken up next by the Council. Dr. Vest moved that charter be granted, Dr. Maxwell seconded and same carried.

Chairman Dunn brought before the Council a matter that he had been discussing with Dr. W. T. Henshaw, State Health Commissioner. Dr. Henshaw had asked Dr. Dunn if the medical profession wanted any changes in the medical practice act and Dr. Dunn advised him that he thought the doctors would like some different qualifications for surgery. Dr. Henshaw had explained to Dr. Dunn that as the Sheppard-owner-appropriation of \$25,000 will no longer be paid to the health department, he wanted the doctors to help get them money from the legislature. Dr. Henshaw suggested that the Association repeal part of the medical practice act, putting the chiropractors and osteopaths back on a dependent basis with the health department. The osteopaths just have to have a high school education. We ought to get the legislature to repeal chapter 40 of the Acts of 1923, that act creating the board of osteopaths examiners, the repeal of which would make the old board reinstated.

Dr. Vest moved that the council go on record as approving the repeal of this act,

according to Dr. Henshaw's suggestion. Dr. Anderson amended the motion by moving that the public policy and legislative committee of the association cooperate in this matter. The motion with amendment was accepted by the council.

Next in order of business was the election of Chairman and two members of the medical defense committee. Upon motion of Dr. Vest the same committee was retained by the council.

Dr. Rader's motion to raise Mr. Savage's salary to \$300 a month carried the council.

Upon Dr. Rader's motion the same publication committee was retained for another year.

Upon Dr. Walkup's motion the salary of Miss Payne was raised to \$165.00 a month.

Upon Dr. Ray's suggestion, Dr. Vest moved that the council recommend to the House of Delegates that the state health department employ an attorney at a salary of not less than \$5,000 a year to be paid by the state, to enforce the medical practice act. This motion carried.

There being no further business, the council adjourned to meet on the call of the chairman.

Meeting of House of Delegates

Monday, May 21, 1928.

The House of Delegates of the West Virginia State Medical Association met in the Y. M. C. A., Fairmont, at 7:45 p. m., and was called to order by the President, Dr. C. A. Ray.

The following delegates were present:

Brooke—Harry Nolte, W. T. Booher.

Cabell—Ray M. Bobbitt, W. Byrd Hunter, O. B. Biern, Walter E. Vest, J. E. Rader.

Central West Virginia—S. S. Hall, C. C. Carson.

Fayette—H. A. Walkup.

Harrison—Eugene B. Wright, A. J. Kemper, B. S. Brake, Chester R. Ogden.

Kanawha—J. R. Shultz, C. E. Copeland, W. A. McMillan, R. A. Ireland, B. S. Preston, R. H. Dunn.

Marion—L. N. Yost, G. H. Traugh, C. O. Henry, H. R. Johnson.

Marshall—B. F. Bone, R. A. Ashworth, C. G. Morgan.

McDowell—J. Howard Anderson.

Mercer—A. H. Hoge.

Monongalia—E. B. Tucker, R. H. Edmondson, C. H. Maxwell.

Ohio—E. L. Armbrecht, M. B. Williams, R. U. Drinkard, E. S. Bippus, H. W. Bond.

Academy of Medicine of Parkersburg—Claude Grimm, George D. Jeffers.

Upon motion of Dr. Biern, the minutes of the last meeting were approved as published in the Journal.

The following reports were read and received:

Executive Secretary, Joe W. Savage, and Treasurer, T. M. Barber, read by Mr. Savage.

Following these reports, Dr. C. G. Morgan gave the report of the Auditing Committee:

"We, the undersigned, committee of the council, hereby notify and affirm that we have gone over the books of the executive secretary and treasurer of the association and medical journal, and found them in perfect balance and accord, approve same and hereby adopt the signing of same."—Drs. Vest, Anderson and Morgan.

Upon Dr. Biern's motion, the report of the auditing committee was accepted.

Upon Dr. Henry's motion, the House accepted the reports of the secretary and treasurer.

Dr. Shultz then read his report as Chairman of the Professional Relations Committee, which upon motion of Dr. Vest was accepted.

Dr. R. A. Ireland, Chairman of the Public Policy and Legislation Committee, read his report, which was followed by discussion. Dr. Vest moved that the report be taken up in its various sections, which motion carried.

First Section—That we go on record as favoring the abolishing the State Miners' Hospitals. Upon motion of Dr. Biern, the House favored this resolution.

Second—That there should be three physicians, in active practice, connected with hospitals and nurses Board of Examiners, and the nursing representation be reduced to two. Dr. Morgan made a motion that the above resolution be adopted, and same carried.

Third—That we go on record as supporting a law providing an appropriation to the State Health Department, not to exceed \$10,000 annually, for the enforcement of the Medical Practice Act.

Dr. Dunn made a motion that the above resolution be adopted, and same carried.

Fourth—That we go on record as favoring an amendment to the Medical Practice Act requiring an applicant for license to practice medicine to take one year's internship in a recognized hospital, before receiving license.

Dr. Walkup made motion that above resolution be adopted, and same carried.

In the discussion that followed Dr. Littlejohn stated that many applicants come to this state, take examination with no intention of practicing in this state. The resolution is in order to protect West Virginia. If this condition goes on, it will restrict our reciprocity with other states; we will be cut down to almost half.

Fifth—That we favor the repeal of Paragraph "C" Section 27 of the Workmens Compensation Law. This paragraph denies fees for medical service where the workman is paying for any attention under a "list" contract.

Upon Dr. McMillan's motion, this resolution carried the House.

In this same connection Dr. Albert H. Hoge offered the following resolution:

"WHEREAS, it appears that in latter years there has arisen a condition in our state whereby some of our physicians and surgeons operating hospitals have felt justified in entering into contracts with large industrial corporations whereby they agree to provide hospitalization for the employees of such corporations and their families for a small sum per month, and frequently enter into competitive bidding for such work; and thereby deny themselves as well as the patient the benefits and advantages of the state compensation,

WHEREAS, such practice is unfair and does deprive other institutions or hospitals of this revenue they are entitled to, and are defeating the very purpose for which the state compensation act was passed,

NOW, THEREFORE, BE IT RESOL-

VED that the West Virginia State Medical Association in regular House of Delegates assembled, condemns such practice and urgently requests its members to discontinue such contracts, which deprive them of fees they are entitled to from the compensation fund, and to refrain from entering into others of like kind."

Dr. Dunn moved the adoption of this resolution, which was carried.

Dr. Ashworth offered an amendment, that the following words be inserted, "driving crippled and sick men to such physicians and hospitals." Dr. Hoge accepted this amendment, and the amended resolution carried the House.

Upon motion of Dr. Vest, Dr. Ireland's report as a whole was accepted.

The following resolution was then read:

"WHEREAS, there are in the State of West Virginia a very large number of mentally defective children; and

"WHEREAS, these unfortunates have been deprived of proper care and training along accepted scientific lines, and are now being sent to hospitals for the insane and to county infirmaries where they come in contact with adult life to their serious detriment and injury; and

"WHEREAS, this unfortunate and regrettable condition reflects seriously and adversely upon the welfare activities of our state; and

"WHEREAS, the Legislature of West Virginia in 1925 provided for the establishment of a home for defective children, but failed to make an appropriation for the same; and

"WHEREAS, the Legislature in 1927 also failed to provide the funds to make it possible to care for these children; and

"WHEREAS, there are more than three thousand crippled children in this State, who should have the care and professional services of members of this society;

"NOW, THEREFORE, BE IT RESOLVED, that the West Virginia State Medical Association hereby approves of a home for mental defectives, and heartily commits its support to an appropriation by the 1929 legislature sufficient to provide for an institution ample in size and adequately equipped

for training these defective children along modern and scientific methods.

"RESOLVED, FURTHER, that we heartily favor an appropriation by the next legislature to treat and care for the crippled children of the state."

Dr. Littlejohn then introduced Dr. T. L. Harris, of Morgantown, who spoke as follows:

"Judge Morgan Owen, of the Juvenile Court of Kanawha County has been very much interested for a number of years in the possibility of providing a state institution for crippled and feeble-minded children, on account of the great percentage of feeble-mindedness among children in West Virginia. One of the doctors in Morgantown told me that many of the cases are hopeless, that they will not do as they are told, and that they cannot possibly be cared for outside of an institution.

"In brief the facts are: Two per cent of the children of the state of West Virginia are feeble-minded, or thirty thousand of our population. These are concentrated in rural sections. Insanity is in the cities. These feeble minded people require some kind of treatment and should be in institutions. The point in the minds of the social workers is that we are at the stage of development where we need appropriations for crippled children and especially an institution for feeble-minded. It would be the center around which the counties could be affiliated and directed by the state institution. Dr. L. V. Guthrie, of Huntington, has been interested in this work for a number of years. Forty-five per cent of the inmates of our state penitentiary are feeble-minded. Two or three per cent are mentally defective. There are three or four hundred feeble-minded children in Huntington at the state hospital at the present time. There is no special institution to which Judge Owen can permit them to go. We have three thousand feeble-minded children becoming criminals who should be cared for in an institution. It is time our legislature in West Virginia joined the other states and appropriate possibly \$100,000 to make a beginning on this work.

"Inasmuch as there is no profession in this state more public spirited than the med-

ical profession, Judge Owen thought this should be brought to your attention. It will help a great deal in getting something definite done. There are only four states that do not have some kind of provision for feeble-minded, and West Virginia is one of them. In the coming session of the legislature we should present this matter in such a way that it will convince them that we need such an institution."

Upon motion of Dr. Hoge, the resolution was adopted.

The report of the Committee on Permanent Home was then read, and upon Dr. Anderson's motion was accepted.

The report of the Committee on Necrology was read by Dr. C. O. Henry, Chairman, and upon Dr. Biern's motion was accepted.

Dr. McMillan read his report as Chairman of the Committee on Workmen's Compensation. Dr. Vest moved its adoption and same carried.

Upon motion of Dr. Henry, the report of the Special Committee concerning the status of the Nicholson bankruptcy proceedings was accepted.

In reporting for the Scientific Committee, the chairman, Dr. Drinkard, stated that he had no report in writing. He stated that the committee composed of Drs. Hoge and Biern and himself, together with Mr. Savage, Executive Secretary,, had worked in perfect harmony in getting up the program.

Upon Dr. Morgan's motion, the report was accepted.

Next in order of business was the consideration of a motion to amend the constitution so as to provide for the election of officers as the last item of business on the second day of the annual meeting, which Dr. Biern had brought before the House of Delegates at the last convention.

In taking a vote, the motion made by Dr. Dunn was lost.

Dr. Biern stated that he had a definite idea in wishing this change made in the constitution. The election of officers should be a minor part of the convention, so it was his idea that the officers should be elected and out of the way for the scientific speeches, and that there would be just as good attendance as the other way.

Next was the consideration of Dr. Steele's motion before the House of Delegates at the last convention, to amend the constitution so as to provide for the election of officers as the first order of business on the afternoon of the third day of the annual meeting.

In the discussion that followed Dr. Henry stated that it would hold the attendance, as many of the doctors would stay over for the election, but would go home when it was over. Dr. Ogden stated that it was very impolite for the doctors to leave before the meeting was over, as at the White Sulphur meeting, some very prominent speakers were on the last day's program and spoke only to a handful of people.

Dr. Morgan moved the adoption of the resolution, which motion was lost.

Dr. Vest then brought to the attention of the House that the resolution should read, "the last order of business on the last day."

Dr. Ray stated that if there was any change made in the resolution it would have to lay on the table for a year.

There being no further business the House of Delegates then adjourned to meet on Thursday morning at 9:00 o'clock.

Wednesday, May 23, 1928

The council of the West Virginia State Medical association met in the Fairmont Elks' Club at 8:30 o'clock p. m. on May 23 with Dr. R. H. Dunn, chairman, presiding. Following a short discussion, it was unanimously decided that the committee on workmans compensation should be composed of Dr. W. A. MacMillan, chairman, Dr. C. A. Ray and Dr. John E. Cannaday, all of Charleston. A motion was then carried to submit the names of Drs. MacMillan, Ray and Cannaday to the house of delegates for final approval.

The question of the medical defense claims now pending against the association was brought up by Dr. C. G. Morgan of Moundsville, chairman of the medical defense committee. A motion was carried to allow the medical defense committee power to settle any and all claims according to its best judgment.

There being no further business to come before the council, the meeting adjourned

until 10 o'clock on the morning of May 24.

Thursday, May 24, 1928

The Council of the West Virginia State Medical Association met at 10:30 A. M., May 24, at the Y. M. C. A. Building, Fairmont. The following were present: Drs. Walter E. Vest, J. Howard Anderson, John Folk, C. H. Hall, C. G. Morgan, H. A. Walkup, J. E. Rader, C. H. Maxwell, Harry M. Hall, President-elect of the Association, George D. Jeffers and C. W. Waddell, newly elected councillors; and Mr. Joe W. Savage, Executive Secretary.

The meeting was called to order by Dr. Vest, the Chairman Dr. R. H. Dunn, having been called back to Charleston.

The first order of business was the election of a chairman of the council for the next year. Upon motion by Dr. Anderson, who stated that Dr. Dunn had served in this capacity so capably during the last year, Dr. Dunn was re-elected.

Upon Dr. Rader's motion, Dr. James R. Bloss of Huntington was re-elected editor of the West Virginia Medical Journal for another year.

Dr. Vest explained to the new members of the council that it was essential that every member of the council be present at the year end meeting in Charleston in December. He stated that it was a very important meeting, as it was the time to go over all the books of the association for the year, and make new plans for the ensuing year.

Dr. Anderson stated that one thing the council should bear in mind was the article in the constitution requesting that councillors get in touch with the county societies and make visits at the time of their meetings, then reporting to the council the situation in the various county societies.

Dr. Morgan said that he thought it would be well if it was published in the Journal that invitations should be issued from the societies to the councillors for a definite time for the councillors to visit the societies. Mr. Savage stated that he had taken this matter up with the secretaries at the secretaries' luncheon.

Dr. Jeffers complimented the luncheon club plan that the professional relations committee has recently put into effect, stating

that he thought it would promote interest in the different societies, and that it would cause the lay public to understand the work of the doctors better.

Dr. Vest stated that this is a pioneer work. It is hard to get publicity in the newspapers, and the association should go slowly about this plan. He was heartily in accord with the idea of the professional relations committee in sending men out of their own towns.

Dr. Vest called on Mr. Savage to outline new plans under consideration for medical defense, who stated that it was the idea to lower the maximum appropriation to \$100, with a provision that it could be raised to \$300 by the members of the council, if necessary. The amount, however, would be set forth as \$100 in the constitution, but in cases that deserve the raise the council would have the right to bring the amount up to \$300.

Dr. Morgan made a motion that a resolution be adopted, which shall be tabled for one year and action taken at the next annual meeting, that the medical defense fund be lowered to \$100, and that provision be made that the council shall have the power to raise the amount to \$300, when a case comes up that necessitates such an expense.

Dr. Walkup stated that the council should have a better plan than this to offer to the house of delegates, as \$300 is no protection anyway. He thought a committee should be chosen to work something out concerning this matter.

Dr. Anderson made a motion that a committee should be selected to formulate a plan to be submitted to the council and house of delegates next year, and that the committee be composed of Drs. Morgan, Walkup and C. A. Ray. This motion being duly seconded by Dr. Jeffers, carried.

Dr. Vest pointed out to the council that the old constitution provided that the Vice Presidents should be members of the House of Delegates, and that the new constitution should have this inserted.

Upon motion of Dr. Maxwell, the Council decided that this question should be brought before the House of Delegates with a view of having the constitution changed to include

the Vice Presidents as members of the House of Delegates.

The Council thereupon adjourned

Thursday, May 24, 1928

The House of Delegates met in the Y. M. C. A. at 8:30 A. M., and was called to order by the President, Dr. C. A. Ray.

On motion of Dr. Vest, the reading of the minutes of the last meeting was dispensed with.

After roll call by the Executive Secretary, the President called for nominations for president.

Dr. H. R. Johnson: "I wish to nominate a member of this association who has been a member for fifteen or twenty years and has never missed an annual session, who has been active in his county society, who is interested in the welfare of our association, Dr. C. B. Wylie of the Monongalia County Society. He will give his best services to the association and will maintain its high standards, if it is the wisdom of the House of Delegates to elect him."

Dr. Robert Reed: "My candidate comes from Ohio County, I am as familiar with him as I am with my own son, we have been so closely related. As a member of the profession in Wheeling he has had every honor including the presidency of his county society, presidency of the staff of the Ohio Valley General Hospital. No one in the association has surpassed him, he has given valuable services for years to the association and to the West Virginia Medical Journal. When they have needed him at the legislative session in Charleston, he has never failed to go and work in the best interest of the association. He is a man of brilliant mind, and if he is elected president of this association, he will uphold its traditions, Dr. Harry M. Hall.

Dr. Linsz seconded the motion, and moved that the nominations be closed.

This motion prevailed and upon vote by ballot Dr. Hall was elected president.

Dr. Johnson made motion that Dr. Hall be chosen president by unanimous vote. Motion carried.

First Vice President

Dr. Ealy nominated Dr. B. F. Bone. Nom-

ination seconded. Motion that nomination be closed and Dr. Bone elected.

Second Vice President

Dr. Biern nominated Dr. W. C. Swann. Nomination seconded. Motion that nominations be closed, and Dr. Swann was elected by unanimous vote.

Third Vice President

Dr. Morgan nominated Dr. J. A. Duff. Nomination seconded. Motion that nominations be closed, and Dr. Duff was elected.

Treasurer

Dr. Linsz nominated Dr. T. M. Barber to succeed himself. Nomination seconded. Motion that nominations be closed and Dr. Barber was re-elected.

Councillors

First District. Dr. Henry stated in placing his nomination that he knew Dr. H. R. Johnson had filled the place ably for twenty years and that Dr. Johnson desired to give the place to someone else, so he would name as his successor, Dr. C. W. Waddell. Upon seconding of nomination by Dr. Bloss, Dr. Waddell was elected.

Second District. Dr. C. H. Hall nominated Dr. C. H. Maxwell. Nomination seconded, and Dr. Maxwell was re-elected by unanimous vote.

Third District. Dr. Ogden nominated Dr. John Folk to succeed himself. Nomination seconded by Dr. Drinkard, and Dr. Folk was re-elected

Fourth District. Dr. J. E. Rader stated that he wanted to take that opportunity to thank the West Virginia State Medical Association for the honors bestowed upon him, as he has been a councillor for twenty years. He nominated Dr. Roy Ben Miller to fill his place on the council. Upon seconding of nomination by Dr. Jeffers, Dr. Miller was elected.

Fifth District. Dr. Albert H. Hoge nominated Dr. J. Howard Anderson. Nomination seconded by Dr. Rader, and Dr. Anderson elected.

Sixth District. Dr. Walkup nominated Dr. Dunn to succeed himself. Nomination seconded and Dr. Dunn was elected.

Committee on Scientific Work

Dr. Vest: "If there is a committee in this association that requires work it is the scien-

tific committee. I wish to nominate a man who has been an active worker in his county society and in the state association, for Chairman of this Committee, Dr. O. B. Biern. Nomination seconded, and Dr. B. I. Golden moved that nominations be closed, and Dr. Biern was elected.

Dr. Anderson nominated Dr. A. G. Rutherford as member of the committee, nomination seconded and Dr. Rutherford elected.

Dr. Morgan nominated Dr. G. H. Barksdale, nomination seconded and Dr. Barksdale elected.

Committee on Professional Relations

Dr. Bobbitt nominated Dr. J. R. Shultz to succeed himself as chairman, nomination seconded and Dr. Shultz was re-elected.

Committee on Necrology

Dr. Jeffers nominated Dr. C. O. Henry to succeed himself as chairman. Upon seconding of nomination by Dr. Rader, Dr. Henry was elected.

Dr. Rader moved that the members of the committee be retained, which motion carried.

Committee on Medical Education

Dr. Biern moved that the present committee be retained, which motion carried.

Committee on Workmen's Compensation

Dr. Vest: "The council met last night and decided to bring before the House of Delegates the following men, to see if they are acceptable to serve in this capacity for the association, Drs. W. A. McMillan, chairman, C. A. Ray and J. E. Cannaday."

Upon seconding of motion by Dr. Butt, (Dr. Vest assuming chair) motion carried.

Delegate to A. M. A. Convention

Dr. Linsz nominated Dr. James R. Bloss. Upon seconding of motion by Dr. Jeffers, Dr. Bloss was elected.

Alternate to A. M. A. Convention

Dr. Ogden nominated Dr. A. A. Shawkey. Upon seconding by Dr. Vest, Dr. Shawkey was re-elected.

Place of Next Meeting

Dr. Bone moved that the next meeting of the association be at Martinsburg.

Dr. Biern made a motion that the next meeting place be White Sulphur Springs, as there were ample hotel facilities there.

Dr. Ogden stated that he had been authorized by the chamber of commerce of Clarks-

burg to invite the members of the association to Clarksburg for the next meeting.

Dr. Jeffers extended a cordial invitation to Parkersburg.

Dr. Shultz extended an invitation for the members of the association to come to Charleston for the next convention.

Dr. Morgan moved that the nominations be closed, which motion was seconded and carried.

By taking a vote, Martinsburg was decided as the next meeting place of the association's convention. (Dr. Biern made a motion that Martinsburg be the next meeting place, same was seconded by Dr. Shultz, and carried.)

Dr. Dailey stated that Martinsburg wished for the doctors to come there during the May festival. Dr. Henry thought that too early, and President Ray said that would have to be decided by the local committee.

Dr. Vest then announced that news had been received of the death of Dr. David Hott who died in Denver of tuberculosis, May 23, He was a member of the Monongalia Society. It would be well to have the association send a message of sympathy and condolence to Mrs. Hott and family in Morgantown.

Upon motion of Dr. Shultz, Dr. C. H. Maxwell was chosen to send the message.

Dr. Bloss told the House that he had heard from Dr. H. G. Steele who is sick in a hospital in Philadelphia, and upon his motion, it was decided that the president, Dr. Ray should send him a message of sympathy.

Dr. B. I. Golden stated that it was brought to his attention on Tuesday that the world has lost a great scientist in the death of Dr. Hideyo Noguchi, bacteriologist with the Rockefeller Foundation's West African yellow fever commission. Upon his motion it was decided to send a resolution to the Rockefeller Institute, and the House asked Dr. Golden to send the following:

The West Virginia State Medical Association in session today passed unanimously the following resolution:

WHEREAS, Dr. H. Noguchi dedicated his life to the investigation and control of disease, and

WHEREAS, His work was truly scientific and epoch making in its benefit to the human race, and

WHEREAS, In the course of his scientific investigation, Dr. H. Noguchi laid down his life as a soldier of science upon the field of battle;

THEREFORE, Be it resolved, first that we, the West Virginia State Medical Association, pay a tribute to his great work, his devotion to duty and his scientific attainments:

Resolved, Second, that a copy of this resolution be sent to the Rockefeller Institute and his co-laborers there, and that a copy be spread upon the minutes of the House of Delegates and published in the West Virginia Medical Journal.

Dr. Harry M. Hall, the newly elected president was then introduced to the House by President Ray, and spoke as follows:

"There is no use in my getting up here and saying that I am obliged to you. One of the finest things about this is the fact that one has friends in his own locality. The vote was close, I hear, so there is no triumph one way or the other. The fact that we should bear in mind now is to forget past conflicts and work together for the betterment of the association. There seemed quite a division the day before the election, and I thought if we were standing in the way, both of us should get out and let someone else in. The West Virginia Medical Journal is going ahead, and will soon be one of the first ten in the country, and we should have a successful year in every respect. We will have if we forget the individual and just work for the association as a whole."

Dr. Linsz made a motion that the association thank Fairmont for their generous entertainment of the members during this convention, which motion was carried.

Dr. Vest amended the motion by stating that the Y. M. C. A. had given their valuable services, and he wished to thank them also. Motion carried.

Dr. Ray stated, "I am very grateful for the honors conferred on me by the association. I appreciate the work of the Scientific Committee, which has made the meeting a success, I wish to thank the individuals of the association and the Marion County Society, who contributed to the success of this meeting. I feel very grateful and proud of the charm presented to me last night, and while

I appreciate it, there is a feeling of sadness and pathos because of the fact that some of the past presidents came to me last night and told me that some of them did not receive charms. My idea was that all past presidents had received one of these charms. I am wondering if the House of Delegates can see its way clear to make some suggestion."

Dr. Ogden made a motion that charms be given to all past presidents who do not already have them. Motion seconded by Dr. Jeffers and carried. This matter was turned over to the executive secretary.

Report of the committee on President's address was received and accepted.

Upon motion of Dr. Bobbitt, seconded by Dr. Simpson, the report was adopted.

Dr. Vest made a motion that the House should thank Dr. Ray for the manner in which he has conducted this meeting at Fairmont. Motion seconded by Dr. Reed and carried.

There being no further business the House of Delegates adjourned sine die.

Report of Committee on Professional Relations

The business of the committee on professional relations is to get before the lay public the value of scientific medicine, to educate the public on various matters of health and the advantage of periodic health examinations, and to tell the public what it should know about the medical profession. In other words, the committee on professional relations is the liaison officer between the doctor and the public at large.

Up to the present year we have tried to attain our objective through the newspapers of West Virginia. It has been a tough battle and we have been losing ground year after year. The reason for this is easily to be seen. The doctors do not advertise and the newspapers depend upon advertising for their very existence. As a consequence, most of the material we sent out to them quickly finds its way into the waste basket. We realized during the latter part of 1927 that something had to be done, and we now feel that we have a solution for this troublesome problem.

At the council meeting in December, 1927, we outlined our new plan and it was unanimously approved. Then we went to work. At the present time we have twenty-four doctors, located all over the state, who have agreed to go out when called upon and talk before the West Virginia service clubs in language that the public can understand. These doctors were selected for their oratorical ability and they were lined up about the first of March.

Shortly after the first of March we sent out letters to the Lions and Rotary clubs in West Virginia, notifying them that we had a number of speakers available for duty, whose subjects would deal with the relations between the physician and the public. We set forth that these speakers could be had for the asking. To date we have filled a number of engagements and in practically every case, the speeches by our own doctors were picked up and published in the newspapers. So we are getting them coming and going. To give you an idea of the manner in which this plan is working, our speakers are appearing this week in Huntington, Morgantown and Clarksburg. We have hardly tapped this field yet, as we still have the Kiwanis, Civitan, American Business Club, Quota Club and the various civic and women's organizations still to deal with.

When a request is received from a club for one of our speakers, we get in touch with the one living nearest to the city or town in which the club is located. But we never allow a doctor to address a club in his own home town; for we believe that no man is a hero in his own community.

If any of you know of any doctor in your community who is adept at making after-dinner talks, I wish you would send in his name to the committee or to the executive secretary. And if any of you who belong to civic clubs can arrange for one of our speakers, give us ten days' notice and we will have one on hand.

In furthering the work of the committee on professional relations, my only suggestion is that all of you, when the opportunity presents itself, lend any assistance you can to the newspapers of this state. We may feel that their attitude toward the medical

profession is unjust, but that is not the point. The point is that the newspapers are none too fond of the medical profession, and that's all there is to it. Those of you who own or operate hospitals, or who are employed by your city, county or state governments, are in an excellent position to build up more friendly relations between the press and the profession.

I hold no brief for the newspapers of West Virginia. Some are rotten and some are good. The only thing I am interested in is making the best of an annoying situation. Some day I hope the time will come when the West Virginia Medical Association can set aside an appropriation to combat through advertising the vicious paid publicity of nostrums and quacks in this state. When that day arrives, it will be a simple matter to place scientific medicine in West Virginia up a few rungs upon the ladder of enlightenment.

J. R. SHULTZ, *Chairman.*

Report of Permanent Home Committee

About six weeks ago I wrote letters to sixty members of the West Virginia State Medical Association located in various parts of the state requesting their views upon the advisability of erecting a permanent home at some time in the future. These letters were all alike and in them I made no suggestions of any kind. I merely stated that a permanent home had been talked of for several years in the past, and that, in order to make a reliable report at this state meeting, I would like to hear the opinions of members from all sections of West Virginia.

From these sixty letters. I received thirty one replies. There were seventeen of them very enthusiastic over the prospect and five that were opposed to it. The remaining nine letters were neither for nor against the erection of a permanent home.

The principal objection that came up even in letters favoring the state home dealt with holding the state meeting year after year at the same place. As far as I am personally concerned, that objection can be ruled out

with a gesture. I do not believe that the permanent home committee has ever entertained any thought that would establish any one city as the permanent meeting place of the association. We feel that the success of our annual meetings is contingent upon our going from place to place year after year.

As I see it, the chief advantage to be derived from a permanent state headquarters would be the prestige it would give to the medical profession and the pride of ownership it would give to the individual members of the association. I dare say that if we could purchase a permanent home tomorrow, our membership would increase more than fifty percent within the next twelve months.

The second advantage of a permanent home would be the establishing of a state library. The association already has perhaps more than one thousand volumes with which to start this library. Approximately one hundred books are received by the journal each year. When these books are received they become the permanent property of the association. In addition, the journal exchanges with about ninety percent of the medical magazines printed in this country. These are kept on file in the office of the executive secretary but there is hardly enough room in our present cramped quarters to efficiently handle these periodicals. In our own home, we could take the annual index published by the American Medical Association and operate a package library for the members of the association in every section of West Virginia. To sum up this library idea, we could have all of the things enumerated above without spending one cent for installation or maintenance.

In this regard, I might say that I have recently consulted the members of the board of the Charleston Public library and believe that they are going to offer us three rooms as a temporary headquarters. If this comes about, we shall probably have a package library in operation within the next few months. If such a library is successful, it will be just one more argument in favor of a permanent state home.

In practically all of the letters I received, it was assumed that the state home, in case

such an institution ever comes to pass, would be located in Charleston. I believe the members of the permanent home committee are of the same opinion. It seems to me that a state headquarters would be far more effective if located in the same city with the state government.

If we are to assume that a state home may some day be erected in Charleston, the members of the Kanawha Medical Society are quite naturally the ones who will derive the most benefit from such a home. Bearing this in mind, it follows that the Kanawha Medical society should be willing to furnish an incentive that would tend to bring the state home to the capitol city. In my opinion, the presentation of a suitable building site would be such an incentive. At any rate, when the time does come to contemplate serious thought on a state home, I believe the Kanawha Medical Society should take the initiative. And the sooner the Kanawha Medical Society does take the initiative, the sooner will we consider seriously the erection of a headquarters in Kanawha county.

The erection of a state home has been talked about now for approximately ten years. It seems to me that the time is ripe to start a definite move in this regard, by establishing a small fund to be known as a "permanent home fund." The establishment of such a fund would obligate neither the council nor the house of delegates to use it for that purpose in case the association found itself in financial distress. Such a fund would, however, have a decided tendency to promote interest in building a state home and it would provide something tangible to work with. If such a fund is in existence when I lay down my hatchet and saw and pass on, I will certainly bequeath to it certain portions of my library and a small portion of my earthly belongings, and I believe many other doctors present feel the same way. I think you get my point.

In connection with the establishment of such a fund, I have talked with the executive secretary in regard to our finances and I know they are in excellent shape. We take in about \$10,000 each year for membership and we pay out about \$7,500 each year

for operating expenses. In addition, I understand the journal is making about \$1,000 a year or more. Surely, we could set aside this journal profit into a "permanent home fund" without embarrassing the association. We are going to do it some day, and I hope we do it now.

W. P. BLACK, *Chairman.*

C O. HENRY,

E. L. ARMBRECHT,

W. B. STEVENS.

Report of the Public Policy and Legislative Committee

This has been a year of rest from the labor of making laws. However on February 9th there was a meeting at Charleston which had for its object the framing of policies for the West Virginia State Medical Association, and which might act as a basis for the preparation of bills to be presented to the next state legislature.

This meeting was called by the secretary of the Public Health Council and was attended by representatives of the health council, the president of your association, Dr. C. A. Ray; and your full time secretary, Joe Savage, Dr. James McClung, Dr. R. H. Walker, and the writer, as members of your Public Policy and Legislative Committee. There were prominent men of this association attending from various parts of the state.

This meeting had for its prime object the ironing out of the rough spots in the relations between this association and the Public Health Council. Let me hasten to say that the meeting seemed to be a success. The following resolutions were passed with practically unanimous approval of those present at the meeting:

That there should be three physicians, in active practice, connected with hospitals on the Nurses Board of Examiners, and the nursing representation be reduced to two.

That we go on record as supporting a law providing an appropriation to the State Health Department, not to exceed \$10,000 annually, for the enforcement of the Medical Practice Act.

That we go on record as favoring an

amendment to the Medical Practice Act requiring an applicant for license to practice medicine to take one years internship in a recognized hospital before receiving license.

That we favor the repeal of Paragraph "C" Section 27 of the Workmens Compensation Law. This paragraph denies fees for medical service where the workman is paying for any attention under a "list" contract.

That we go on record as favoring the abolishing of State Miners Hospitals.

Your committee has co-ordinated in the similar activities of the Hospital Association of West Virginia.

There is a movement on foot in some states to save the medical profession from criticism by regulating the expert testimony of doctors in murder trials and similar situations. It has been suggested that only the trial judge should have the right to ask questions of the expert.

There is a better spirit of co-operation between your committee and the Public Health Council than has existed for several years, and there is prospect of greater accomplishments as a result of better team work.

R. A. IRELAND, *Chairman.*

Report of Committee on Necrology

The Committee on Necrology has the sad duty of reporting to this body the untimely deaths of the following respected and honored members of our profession:

Drs. Gregory C. Ackerman, Wheeling.

Oscar Beer, Coral Gables, Fla. (Buckhannon, W. Va.)

C. M. Brown Mt. Hope.

Walter W. Bucklew, Tunnelton.

John A. Burke, Crawford.

Wm. Earl Grim, Cameron.

N. A. Haning, Wheeling.

John E. Hyer, Curtin.

Norman D. Jobs, Elm Grove.

Wm. F. Ebert, Wheeling.

William F. Boyers, Fairmont.

George A. MacQueen, Keyser.

J. Whann McSherry, Martinsburg.

A. N. Osborne, Frum.

Martin L. Miller, Mannington.

Thos. E. Peery, Bluefield.

S. A. Pratt, Kingwood.
C. L. Rohrbaugh, Belington.
E. W. Lomax, Bluefield.
J. S. Offutt, Capon Bridge.
A. H. Thayer, Grafton.
H. B. Stout, Parkersburg.
David Hott, Morgantown.

C. O. HENRY, *Chairman.*

Report of Workmen's Compensation Commission

During the fiscal year ending June 30, 1927, the Workmen's Compensation Department paid the sum of \$704,354.55 to physicians and hospitals for medical, surgical and hospital treatment rendered to injured employees. It is at once apparent that the manner of expending so large a sum of money demands great efficiency, if the injured man is to receive the best treatment possible and his physician is to be compensated justly for his services. Only when a full and sympathetic understanding exists between the workmen's compensation commissioner and the organized medical profession of the state, can the spirit of the workmen's compensation act be fully carried out.

Realizing this fact and desiring to disburse the money at his disposal to best interest of the injured employee and in full justice to his physician, the new commissioner, the Honorable C. L. Heaberlin, decided to take active steps to effect the closest co-operation between his organization and the medical profession of the state. Soon after his induction into office in July, 1927, he requested the West Virginia Medical Society—through its President, Dr. C. A. Ray, to appoint a committee of representative physicians to meet him and discuss those features of the compensation act in which both they and the department were interested.

A conference was arranged and the committee met the commissioner on September 6, 1927, at which time there was a general discussion of the various features of the compensation act as it impressed with the sincerity of the commissioner and is convinced that he is striving not only to obtain the best possible treatment for injured em-

ployees but also to accord full justice to the physicians who render this service.

There was a general discussion of the old fee schedule, which was taken up item by item and revised in certain particulars. In its final form it met with the hearty approval of the committee and was unanimously adopted. The committee believes that this revised fee schedule will prove far more satisfactory than the ones previously used and that it will be endorsed by all physicians and hospitals.

The committee is convinced that the commissioner will do his full duty to physicians, provided he has the necessary information with regard to the cases under treatment. To this end the Commissioner's office should be advised promptly with regard to all injuries and their treatment.

The method of compensating physicians in the past was faulty, both in theory and practice. The schedule of rates was such as to encourage poor service and—it must be admitted—occasionally resulted in excessive charges. In its practical application, it served to place a premium of inefficient medical attention and was therefore vicious in its consequences both to the patient and the conscientious physician.

It is to be emphasized that, before taking any action with reference to the revision of the fee schedule, the commissioner conferred with the committee of the West Virginia Medical Society. His attitude was entirely one of co-operation. The committee, therefore, asks the medical profession of the state to work with the good efforts of the commissioner in the spirit of mutual understanding.

Physicians are urged to familiarize themselves with the provisions of the workmen's compensation act, in order that they may advise patients intelligently, many of whom are entirely uninformed with regard to their rights under the law. Naturally the physician is the person who is best fitted to give them this information.

The commissioner pointed out that there is an unnecessary expenditure of funds for minor injuries such as lacerations of fingers, sprained back, etc. It often happens that employees with minor injuries insist that

their physicians do repeated and apparently unnecessary dressings, thus adding extravagantly to the total cost of treatment. If the compensation fund is to be conserved without harm to employees with such trivial injuries, there is great need for closer cooperation between physicians and the commissioner in this matter. The commissioner is anxious that this fault, wherever it has existed, be corrected and the committee assured him that the physicians of the state will do their part to remedy this evil.

In cases with unusual complications, such as multiple injuries or infection of wounds, it is important that the physician write promptly to the commissioner and acquaint him with all the facts, in order that he may judge the case intelligently. The committee believes that, if physicians will observe this request, a great deal of delay and misunderstanding will be avoided.

There seems to be much misunderstanding with regard to what constitutes permanent disability. In this matter the commissioner must be guided by the report of the attending physician. It is essential, therefore, that the physician understand the provisions of the act with reference to permanent disability, in order that he may make definite report to the commissioner.

The committee believes that the revised fee schedule now in force will work to the interests of the patient and physician alike, that it will correct many of the old abuses of the compensation system, and that it will be conducive to a happier understanding between all parties concerned in the care of injured employees and the adjustment of awards. Its success will depend largely on the extent to which the physicians, and hospital superintendents of West Virginia cooperate with the commissioner in his earnest efforts to promote efficiency.

Very truly yours,

W. A. McMILLAN, M. D., *Chairman*

J. ROSS HUNTER, M. D., F. A. C. S.

R. H. WALKER, M. D., F. A. C. S.

May 19, 1928.

TO THE HOUSE OF DELEGATES:

Since publishing the report of our committee, a copy of which you will find in the

official manual of the workmen's compensation fund, your committee has met at various intervals to discuss different phases of the work. A few of the points I wish to impress upon our profession of the West Virginia Medical Association are:

1. That the workmen's compensation plan is still in its early years of service and that it has proven no experiment but a practical benefit to the business enterprises and the citizens employed in industrial plants.

2. Your committee in conference with our state compensation commissioner has found him always open for suggestions that will benefit this department of our state government and recommendations by which the compensation law can be administered to the advantage of the wounded employees of our state.

3. If at any time a misunderstanding should occur between a physician and the workmen's compensation department, your committee urges that these misunderstandings be immediately taken up with the compensation commissioner.

4. Your committee further recommends that employers of labor be advised to have compulsory physical examination of all applicants for employment before being taken into the service and that a copy of such examination be filed with the public service compensation commissioner.

We sincerely trust that our efforts have been of some service to the members of our profession and that if we have erred in any way, it has been in the right direction and with the assurance that we were doing the right thing for the citizens of our state, as well as members of our profession.

Yours very truly,

W. A. McMILLAN, M. D., *Chairman*

Report of Executive Secretary

This report will be short and it will deal principally with membership and finance. It will not take up all the activities of my office for two reasons: first, I think you are more interested in the general management

of the office of the executive secretary than in an exhaustive outline of its accomplishments; and second, most of the activities of my office will be covered in the various committee reports.

A complete report of the Committee on Professional Relations will be made by Dr. J. R. Shultz, Chairman. Reports will also be made by the committee on medical defense, scientific work, public policy and legislation, medical education and workman's compensation. I will therefore not go into these matters.

The office of the executive secretary has functioned throughout the year with the idea of service foremost in mind. It has furnished relief men and permanent assistants to many members of the association. It has looked up and settled a large number of workmen's compensation claims. It has written an ever increasing number of automobile insurance policies through our group rating. It has worked diligently with all of the standing committees. It has taken care of all correspondence. In other words, the office of the executive secretary has carried on its normal functions in a manner that I hope has met with your approval.

Membership.—This report was prepared on May 10. At that time there were 971 paid up members of the association. On May 10, 1927, there were 874 paid up members of the association. In other words, we are 97 members ahead of last year. This gain can be attributed partly to the fact that we have 70 new members this year and partly to the fact that we have twenty fewer delinquent members. There are 153 delinquents now and there were 173 delinquent members on May 10, 1927.

More than any other component group, the Kanawha Medical Society is responsible for the increase in membership this year. The Kanawha society has taken in approximately 20 new members within the past three months. Other societies that have contributed materially to the increase are Logan County, McDowell County, Central West Virginia, Mingo and Wayne. The societies having one hundred percent paid up

membership on May 10 were Preston, Wayne, Lewis, Doddridge, Logan, and Taylor.

A considerable number of memberships have been paid up since this report was prepared.

It is my opinion that the membership of the West Virginia State Medical Association could be further increased and that more interest in the association would be manifested if the councillors would make more frequent visits to the societies in their respective districts. This, however, is as much or more the fault of the societies than it is of the councillors. If the societies would prepare an occasional program to include their councillors and would invite their councillors to attend, there would be a lot more cooperation and harmony and understanding in the various districts. I hope that the councillors and the component society secretaries will give this matter some consideration and that they will be able to get together a little more often in the future.

One new society has been organized this year, in Wayne county. Dr. Ray and myself took part in the organization meeting and the doctors in Wayne county are apparently very enthusiastic about their new society. They have ten members and there is only one doctor in the county who does not belong. Their petition for a permanent charter will be considered at this meeting. Another new society is under consideration in Wyoming county and the doctors there will probably complete an organization some time this summer.

Taken as a whole, I think the membership of the association is in a satisfactory condition and I believe the records in my office show a wholesome and steady growth.

Journal Report

In considering the report on the West Virginia Medical Journal, it might first be well to review hastily the report that was compiled on May 1, 1927, when the change in the management of the office of secretary-

manager was made. This report covered a period of 17 months, from January 1, 1926, until May 1, 1927, and was made up for the purpose of showing the exact status of the journal financial condition when it was turned over to me.

During this period of 17 months the journal took in funds amounting to \$4,171.36. Its disbursements amounted to \$5,319.88. In other words, the journal lost during this time a total of \$1,148.52. This loss was made up from time to time by money appropriated from the general fund of the association and placed to the credit of the West Virginia Medical Journal. The total amount appropriated for this purpose was \$571.05 and when the journal was placed in my hands it was \$577.47 in the hole. This was represented by outstanding debts of \$630.50 and cash in bank amounting to \$53.03.

Working with Dr. C. A. Ray, then editor of the journal, we started a drive to build up the journal advertising and to put the journal on a paying basis. In the 12 months that have elapsed since that time, we have secured 45 new advertising contracts. Of this number, twelve have been secured through the American Medical Association and thirty-three came direct to our office as the result of correspondence. On July 29, 1927, we paid our last outstanding debt and the Journal was "off the rocks."

Since that time we have been building up a steady surplus and I have with me a bank book to show a savings account of \$1,000 drawing interest at three per cent. We took out this savings account in order to put some of the journal money to work. In addition we have a balance on our checking account of \$209.63 to take care of any bills that come up from time to time. The journal has not been in debt since July 29, 1927. All bills have been discounted since that date.

We feel that the journal has done well from a financial viewpoint. Its total earnings for the past twelve months can be figured in this way; take the \$1,000 in the savings account

and add the indebtedness it started out with of \$571.05 and you get \$1,571.05. To this figure, add the amount in the checking account of \$209.63 and you get \$1,780.68. That figure is the net profit represented in cash.

Of course there were outstanding bills payable on May 1, 1927, but there are also outstanding bills payable at the present time. The figures then were just about what they are now. They are not considered in either case in this report, as I have endeavored to give you the actual, and not the theoretical profit.

Financial Report, West Virginia State Medical Association—I have brought all of the original entry books of both the association and the journal with me and have them at hand for the auditing committee to go over. Also, I have a complete report of all receipts and expenditures since my term of office as executive secretary. Believing that this complete report would be almost too exhaustive to present in full at this time, I have summarized the items in a manner that I think will give the members of the council and house of delegates a much better grasp of our actual financial standing. This summary embraces the period from May 1, 1927, until May 1, 1928, or, in other words, the twelve full months I have been with the association. As a basis of comparison, the figures are placed alongside those of the preceding fiscal year.

Monthly Expenditures

	1927	1928
May	\$ 920.13	\$ 600.35
June	958.21	799.08
July	596.03	600.34
August	503.26	469.29
September	623.67	560.31
October	521.60	623.86
November	478.60	504.14

December	605.87	622.30
January	535.90	619.85
February	589.72	512.51
March	712.11	506.36
April	649.88	514.43
	<hr/>	<hr/>
	\$7,694.98	\$6,933.42

In other words, there was a saving of \$761.56 in the operating expense of the office of the executive secretary over the twelve months period mentioned above. I am calling this to your attention to show you that the cost of maintaining the office of the executive secretary is going down rather than going up.

Now for receipts. The receipts cannot be listed month by month, as the funds received were not forwarded to the treasurer in that manner. However, I am taking the amounts forwarded to Dr. T. M. Barber, treasurer, from the first of the present year until May 1, 1928, and comparing them with the amount forwarded to him from January 1 until May 1, 1927.

Forwarded to Dr. T. M. Barber, Treasurer—

	1927	1928
January	\$1,261	\$1,326
February	1,135	2,198
March	1,400	5,313
April	4,604	507
	<hr/>	<hr/>
Totals	\$8,400	\$9,344

In other words, this present year shows an advantage of \$944 over the year preceding. This gain was accounted for in the report on membership which showed approximately 100 new members of the association.

In addition to the revenue from membership dues, the association has collected this year in the neighborhood of \$4,000 from the Nicholson estate. The exact amount will be given in the report of the treasurer.

There is just one more item in regard to finance. That item is in regard to the receipts and expenditures of this convention.

After all convention bills and expenses are paid, there will be approximately \$200 profit to turn over to the association treasurer. The members of the Marion County Medical Society were not assessed for this convention.

FINANCIAL STATEMENT

WEST VIRGINIA MEDICAL JOURNAL

(January 1 to May 1, 1928)

Cash on hand, Jan. 1, 1928	\$ 559.12	
January receipts	439.15	
January expenditures	\$	637.29
February receipts	481.43	
February expenditures		352.25
March receipts	527.57	
March expenditures		308.70
April receipts	442.25	
April expenditures		341.82
May receipts (to May 14)	403.17	
May expenditures (to May 14)		3.00
Balance cash on hand (May 14)	\$1,209.63*	
	<hr/>	<hr/>
	\$2,852.69	\$2,852.69

*This figure of \$1,209.63 is represented by \$209.63 on deposit in the journal checking account in the Citizens' National Bank and \$1,000 on deposit in the journal savings account with the Bank of Commerce. These deposits were made as follows:

January 28	\$300.00
February 13	100.00
March 10	200.00
April 12	150.00
May 11	250.00

Total\$1,000.00

FINANCIAL STATEMENT

WEST VIRGINIA MEDICAL ASSOCIATION

(January 1 to May 1, 1928)

Expense of Executive Secretary's Office—

Cash on hand	\$1,000.00
January	\$ 619.85
February	512.51
March	506.36
April	514.43
Received from Treasurer	2,153.15
Balance on hand	1,000.00
	<hr/>
	\$3,153.15
	<hr/>
	\$3,153.15

Dues from membership forwarded to Treasurer—

January	\$1,326.00
February	2,198.00
March	5,163.00
March	150.00
April	507.00
<hr/>	
Total	9,344.00

Respectfully submitted,
JOE W. SAVAGE,
Executive Secretary.

Report of Treasurer

Balance on hand June 20, 1927	\$ 3,204.71
Rec'd from C. A. Ray (error on old account	11.85
Convention receipts 1927 meeting	103.26
Dues for members June-December	1,632.00
Rebate for Hygeia	10.00
Dues for members December-May	9,344.00
Transferred from Indigent Fund	800.00
Transferred from Medical Defense Fund	429.70
Refund difference Nicholson insurance	150.50
Reimbursement repairs Nicholson house	429.70
Dividend Nicholson bankruptcy	697.97
Balance on S. O. Neale account	114.06
Note and interest (Roberts) on Nicholson house	1,265.00
Interest on savings bank account	1.50

Interest on \$600 note	\$.60
Working Fund, Executive Secretary	1,000.00
Salaries and expenses, Executive's office..	6,332.47
To square Neale account	194.80
Geo. Washington Life Ins. Co.—Nicholson ins.	1,301.00
John Ray, Trustee, repairs Nicholson house	429.70
Indigent, refund \$800 and bal. from dues..	1,867.00
Medical Defense Fund, refund \$429.70 and bal. from dues	1,432.70
Bank balance, saving account	102.42
Bank balance, checking account	5,533.56

\$18,194.25 \$18,194.25

T. M. BARBER, M. D., *Treasurer.*

Indigent Fund—

Bal. on Hand, June 20, 1927....	\$ 921.75
Int. rec'd Jan. 1, 1928	1.81
Refund loan to gen. exp. fund..	800.00
Amount from dues	1,030.00
Amount from dues, error deposit	37.00
Loan on General Fund	\$.800
Balance on hand May 21, 1928	1,990.56
	\$ 2,790.56 \$ 2,790.56

Medical Defense Fund—

Bal. on hand, June 20, 1927 ..	\$ 890.75
Interest, Jan. 1, 1928	6.91
Refund of loan to Gen. Exp.	429.70
Amt. rec'd from dues	1,040.00
Loan on Gen. Expense Fund	\$ 429.70
Error in deposit	37.00
Balance on hand May 21, 1928	1,900.66

\$ 2,367.36 \$ 2,367.36

T. M. BARBER, M. D., *Treasurer.*

The West Virginia Medical Journal

Directed and Edited by the Committee on Publication

[The Committee on Publication is not responsible for the authenticity of opinion or statements made by authors or in communications submitted to this Journal for publication. The author or communicant shall be held entirely responsible]

JAMES R. BLOSS, *Editor-in-Chief* - - - - - Huntington

ASSOCIATE EDITORS:

WALTER E. VEST
Huntington

HARRY M. HALL
Wheeling

J. HOWARD ANDERSON
Marytown

C. A. RAY
Charleston

MR. JOE W. SAVAGE, *Secretary-Business Manager*, Charleston

Entered as Second Class Matter, January 1, 1926, at the Postoffice at Charleston, West Virginia

Volume XXIV

AUGUST, 1928

Number 8

ACUTE TRANSVERSE MYELITIS *

By WALTER E. VEST, A.B., M.D.
Huntington, West Virginia

IN LOOKING up the literature on this subject, we find the term "myelitis" used with much latitude and, we might add, with longitude as well. Under this term have been grouped cord changes due to inflammation, acute and chronic; to blood vascular conditions which result in softening, *i.e.*, myelomalacia; to actual hemorrhage into the cord, or hematomyelia; to pressure, the result of trauma, disease or neoplasm; and to lessened atmospheric pressure, the so-called caisson disease. In this paper we are considering that group of clinical cases which are either infectious or toxic in origin and are characterized by either inflammation or softening or both, as the two pathological conditions are often coincident. Moreover, only that group of cases whose major extension is transverse to the long axis of the cord is considered. As an example, we give the following history:

P. H., residence, Garrett, Kentucky, age 37, white, male, brakeman; nativity, Tennessee; admitted December 8, 1926.

Chief complaint on admission: Weakness

of legs with mild pains, especially in the knees and hips.

Family history: Parents living and well. One sister died of sepsis. Wife well and has never miscarried. Three children living and well.

Past history: Had pneumonia, of moderate severity, two years ago. Had appendicitis in June, 1925, and was operated upon with an uneventful recovery. Drank considerably up until fifteen years ago, but has not taken any alcoholics recently. Urinary history negative. Never constipated. Has been a heavy salt-eater but does not use other condiments. Drinks one cup of coffee at each meal. Has been a hard worker his whole life.

Present illness: On August 31 had a pain in the left side of the abdomen, which he thinks became slightly swelled. The pain was so severe he felt he had to have relief and called a doctor who diagnosed the condition as pleurisy and lumbago. He went to bed. He does not know whether he had temperature or not, but thinks the doctor did not take temperature. His side was poulticed. He was nauseated and vomited shortly after the on-

* Read before the West Virginia State Medical Association at White Sulphur Springs, June 23, 1927.

set of symptoms. The pain gradually wore off and by the ninth day was gone. He does not remember any other symptoms during the first ten days. The next day after he noticed complete relief from the pain, on September 9, after eating lunch, he went out on the porch and sat down in the swing with his feet hanging over. After sitting there for a half-hour he undertook to get up and found that he had lost the use of both legs. He called his wife and was carried into the house. All sensation and motion were gone for thirty-five days when, he says, sensation came back suddenly down to the left knee, but he is not sure that this had been gradually returning and he had not noticed it. After that there was gradual return of sensation in the left leg and foot. Motion returned synchronously with sensation and ten days later he noticed that the entire leg was sensitive and that he had control of all the muscles. He did not know that there was any sensation in the right limb upon admission to the hospital, but upon examination it was found that sensation was present down to the knee on the inner aspect of the thigh. He never had any severe extremity pain. There was never any involvement of the spinchters, and, according to his story, there was never any disturbance of sensation above his belt.

Physical examination showed a well-nourished male who could move about with crutches, normal except for his lower extremities. There had been complete restoration of the left limb prior to admission to the hospital. Sensation was present down to the knee on the inner aspect of the right thigh. There was a right Babinski and the knee jerks were approximately normal. Spinal puncture was done on the day after admission, December 9. The pressure was 4 millimeters of mercury which arose to 10 on cough, 12 on jugular pressure for five seconds, and to 14 on straining. The fluid was slightly turbid and there was no evidence of coloration. Following the puncture, he had a terrific reaction. There was nausea, generalized bodily aching, and he looked sick. However, there was no temperature and no acceleration of pulse. This lasted about three days, gradually subsiding. By December 14, that is, four days after his spinal puncture

and the day following the cessation of his bodily aching, he noticed that he had sensation in his entire right leg and could move it. About three days later, sensation was apparently normal and there was motion present in the entire limb. However, there was apparent weakness as compared with the left.

On December 18 spinal puncture was again done, under novocaine. The pressure was 4 and it arose to 12 on jugular compression. The fluid was slightly cloudy and there was no coloration. The reaction after this puncture was fairly marked but not nearly so much so as after the first.

Several urinalyses were essentially negative except for the presence of an occasional leukocyte. His blood examination showed 4,800,000 red cells; hemoglobin 85; leukocytes 12,200; polys 64; lymphocytes 30, and eosinophiles 6; Wassermann negative.

The stool examination was negative for ova of parasites.

Examination of the spinal fluid showed a cell count of 250 with lymphocytes markedly predominating. There was no increase in globulin. The sugar reaction was positive. The Wassermann reaction was negative.

Upon discharge from the hospital December 31 his condition was normal except that there was possibly still a slight weakness in the right leg. He was examined again on January 24, 1927, and was in very good condition. His limbs were apparently normal. This time his white blood count was 13,300; polys 63; lymphocytes 28; eosinophiles 8; basophiles 1. He insisted upon returning to work against advice. On April 22, in a letter, he said that he was "still working but having a lot of back trouble." His symptoms were not further explained.

Incidence

Myelitis is a fairly uncommon disease. Hyslop estimates that one-half of one per cent of admissions to general hospitals suffer from involvement of the spinal cord. Of 130 consecutive cord cases at Bellevue, 19 had myelitis of either infectious or toxic origin. This would indicate that about one out of

every fourteen hundred admissions to general hospitals has acute myelitis. In our own clinic it has been much rarer, however.

Etiology

Acute myelitis most often affects adults in early or middle life, but is seen rarely in old age and in childhood. Males are more often its victims than females. Dana says that heredity and neuropathic constitution are not important factors, though it is probable that there are some persons whose spinal cords are less resistant to infection than others. Exposure to cold, especially sudden chilling, bodily and sexual excesses, and violent concussion are alleged causes, although Osler believes it is rarely ever the result of injury except when there is actual fracture or dislocation of the vertebral column, and Collins and Zabriskie agree that almost all the acute infectious diseases have been at times complicated by cord involvement, especially typhoid, pneumonia, measles, general sepsis, scarlet fever, and smallpox. Interesting forms are those due to cystitis, so-called "urinary paraplegia," and that associated with toxemia of pregnancy. Of the chronic infections, tuberculosis, especially the meningeal form, and syphilis have been reported as causes. Many different organisms have been isolated, but the streptococcus and the pneumococcus more often than any others.

Pathology and Pathogenesis

Macroscopically there is often a meningitis, or at least a hyperemia of the meninges, and the cord itself appears congested and somewhat swollen. Because of the hyperemia, the distinction between the white and the gray matter is not so clearly marked as in the normal cord. There is a change in the actual consistency of the cord, it being softer than normally, at times even being diffuent upon section of the pia, flowing out like creamy pus. Minute hemorrhages may be made out. Under the microscope, in the inflammatory type there are seen intense congestion, dilated blood vessels, perivascular leukocytic infiltration, swollen or disintegrated axis cylinders, edema of the myelin sheath, and minute hemorrhagic areas. The toxic form is characterized by edema, mild degenerative

changes in the cells and in the myelin sheaths. There are two theories of the pathogenesis: (1) That there is a selective toxic agent developed at a separate focus in the body responsible for the lesion, and (2) that there is a localized settling of organisms and their immediate toxins, entrance being effected by direct extension from the meninges or the vertebral column, or by the blood stream in the severe hemorrhagic types—hematogenous myelitis; or in the exudative types, lymph borne through the lymphatic vessels accompanying the spinal nerves. Inasmuch as an actual pathological difference can be shown between the toxic and infectious cases, it is probable that these theories represent two varieties of myelitis. Turner (*Southern Medical Journal*, June, 1927) reports three cases of the toxic type, with recovery.

Symptoms

The first noticeable symptom is usually numbness of the legs and feet which seem heavy and weak. Complete anesthesia to touch, pain, and temperature shortly follows and the limbs feel as if they were dead. Fever may be present, and, if marked, is of grave import. It denotes either an infectious origin or a severe complication, usually cystitis, pyelonephritis, or phlebitis. As the paralysis progresses, the extensors of the legs are slower to succumb than the flexors and the legs can be pushed down better than drawn up and adducted better than abducted. The bilateral character of the paralysis is very marked. The rectal and vesical reflexes are deranged, constipation usually being present with either urinary retention or incontinence. Usually there is an area of hyperesthesia just above the margin of the anesthetic area, a "hyperesthetic girdle." Priapism may be present, especially following catheterization, or there may be erections without the patient's being conscious of them, the latter condition being present when the lesion is cervical or dorsal. Muscular twitching and contractions are frequent and the contractions are often painful, especially on slight stimulation. This finding is characteristic of an organic cord lesion and, when present, is a valuable differential sign in excluding functional paralyses. Aside from the

painful contractions mentioned, and, at the onset, usually before the development of the paralysis, the neuritic pains near the site of the lesion, pain is not a prominent symptom.

Location of Lesion

If the paralysis is complete, this is not usually difficult, as the exact site of the lesion may be determined by mapping the line at which the disturbance of sensation begins. The findings differ, of course, dependent upon the site of the involvement. If the cervical region is involved, there will be flaccid arms and spastic legs. Unilateral blushing and inequality or contraction of pupils may be present, as may hiccough, bradycardia, dysphagia or dyspnea. The reflexes in the arms will be diminished or lost, and those below will be exaggerated.

The commonest site, according to Osler, is in the dorsal region. When this is the case, and there is no involvement of the lumbar segment, the arms are normal and the legs are spastic. The abdominal reflexes are absent and those below are exaggerated. When the legs are spastic, both the Babinski phenomenon and ankle clonus are present.

When the location is lumbar and the conus is involved, the legs are flaccid, the knee jerks are lost, as are the Achilles jerks, and the plantar reflexes are abolished. The vesical and rectal sphincters are usually deranged regardless of the site of the lesion. The electrical reactions are altered only in the muscles supplied by the roots coming off from the diseased area of the cord.

Course and Prognosis

Usually within three or four days the maximum paralysis has been reached. During these first few days, the temperature of the involved parts may be increased, but this shortly subsides and the limbs become cooler than normal. The skin may become rough and congested, or excessive perspiration may be present. After the height of the disease has been attained, there is usually a stationary period of a few weeks, followed, in favorable cases, by a very slow convalescence. Sensation returns in from six to eighteen months. Bed sores tend to develop promptly, and are

seen in the great majority of cases. If the lesion is lumbar, there is wasting of the legs. Spasms and contractions may develop. Of the non-fatal cases, a few apparently recover entirely, although most of these show some residuals of the disease and a goodly percentage present the characteristics of ataxic paraplegia.

On the other hand, many patients die, most often from an infectious complication, septicemia from bed sores, pyelonephritis, or a terminal pneumonia. If the onset is markedly febrile, the prognosis is grave. The same is true of cervical lesions, and the higher the site the graver the outlook. Dorsal lesions are least dangerous. The more complete and extensive the motor paralysis, the poorer the chances for the patient. Bed sores are unfavorable, and the necessity for prolonged catheterization usually bespeaks a fatal issue via the urinary infection route. Intelligent nursing improves markedly the outlook. Improvement in bed sores is a favorable sign. In general terms, if no improvement is noticeable at the end of six months, the case is hopeless. As to the percentage of non-fatal cases, Junch believes recovery rare. Tucker believes that the death rate is approximately fifty per cent.

Differential Diagnosis

Hemorrhage into the cord may resemble acute myelitis. It is differentiated by its very sudden onset, usually all the symptoms being fully developed in a few minutes. There is much more pain, especially in the beginning, and fever is absent. Dana says that spinal puncture will enable one to differentiate the conditions, the presence of blood showing a hemorrhage and a lymphocytosis an infectious process. At times it is practically impossible to differentiate clinically hemorrhage and thrombosis from acute myelitis.

Landry's acute ascending paralysis has to be differentiated, and this can usually be done by recalling that in myelitis sensation is disturbed from the onset, that paralysis of the bladder and rectum are common, trophic disturbances, rapid wasting and electrical changes ensue and fever is usually present. Landry's paralysis is very rare in children,

usually being seen in the third decade of life. It usually begins in the feet and there is rapid progression upward. If doubt exists, the course of the disease will usually make the differentiation. The toxic type of myelitis more closely simulates Landry's paralysis than does the infectious type.

Spinal meningitis may be confused with myelitis, but the differential diagnosis is not of great practical value as the conditions so often overlap, there being almost always some myelitic involvement with meningitis. Involvement of the meninges is usually indicated by considerable pain at the site of the lesion and distinct neuralgic pain along the nerves arising from the diseased portion of the cord.

Multiple neuritis may be distinguished by its slower onset; more pain and usually a greater symmetry to the pain; slight or absent trophic disturbances and lack of sphincter involvement.

Hysterical paralysis may give great difficulty. Hyslop calls attention to the fact that the workmen's compensation laws have made this differentiation a much more common problem than it was some years ago. Ordinarily, hysteria may be made out by (1) the lack of trophic changes; (2) the fact that the anesthesia is not anatomical in distribution; (3) the reflexes are usually normal; (4) other stigmata of hysteria are present; (5) the sphincters are more variable than in organic disease; and (6) the spinal fluid is normal. Painful muscular contractions, "painful cramps," in the affected extremities usually exclude hysteria. It should always be remembered that hysteria and organic disease may be coexistent.

Spinal Puncture

This procedure has two definite aims: (a) diagnosis, and (b) treatment. When done, the pressure should be noted, as well as the increase in pressure on straining and on jugular compression. By this means we are able to judge usually whether there is partial or complete block, and we may be able to differentiate a cord tumor. The color of the fluid should be noted, and, if coagulation ensues,

the probable meaning is that there is a complete block. The fluid should be examined for the presence of blood, bacteria, sugar, and globulin, and a cell count and Wassermann should be done. Turner believes that the presence of a web-formation in the fluid is characteristic of polio. He urges early puncture in all cases of suspected myelitis, and, we believe, with good reason. It aids in the diagnosis, allows at least a partial escape of toxin, lessens the pressure, and furnishes an index of prognosis.

Treatment

Rest in bed, either on the back or prone upon the abdomen, preferably with some form of extension, should be insisted upon. Careful change of position at regular intervals will add to the patient's comfort. The bowels should be kept well open. Scrupulous cleanliness and a smooth bed are absolute necessities, and all pressure of bedding should be kept off the feet. An ice-bag to the spine or counter-irritation may help. Very careful catheterization is absolutely essential. Careful nursing is a *sine qua non*. Urotropin has been used because of the danger of urinary complications. Iodides are recommended by most authors. Early spinal puncture should be done with repetition p. r. n. If block is shown, laminectomy is to be considered. Later, massages and passive movement are indicated, and orthopedic consultation should be had, especially if contractures appear. Throughout the course of the disease, the nutrition should be well maintained.

Case Discussion

We carried this man on the hospital records under the diagnosis of "myelitis, acute, transverse." The probable pathologic course in this case was a localized meningitis with a hemorrhage ten days after onset with a resultant myelitis and recovery. We have never been able to satisfactorily account for his eosinophilia. Apparently the spinal punctures hastened his recovery despite the severe reactions following.

✓ EXPERIMENTS WITH PEPTIC ULCER : THEIR PRODUCTION AND HEALING *

By CHARLES BRUCE MORTON, M.D.

University, Virginia

Assistant Professor of Surgery and Gynecology, University of Virginia

IN PREVIOUS papers I have compiled bibliographies and described in some detail certain experiments in which I induced the formation of typical chronic peptic ulcers in the stomach, duodenum and jejunum of the dog. Healing of such ulcers ensued when the factors which caused their formation were withdrawn or neutralized. Since the publication of these papers certain additional experiments seem to confirm the conclusions drawn from the early work and add some other pertinent data not yet ready for publication. In this paper I shall make a brief resume of some of my experiments with peptic ulcer.

Since the time of Cruveilhier in 1829 numerous workers have attempted to produce peptic ulcers in experimental animals and many have evolved hypotheses to explain the occurrence of peptic ulcer in man. But no hypothesis yet advanced has served to explain the occurrence and persistence of such ulcers as chronic lesions under the various different conditions encountered clinically.

The differences between acute and chronic ulcers have been described in detail elsewhere. Acute ulcers have been produced in experimental animals in many different ways. Any direct or indirect method of causing solution of the continuity of the mucosa will produce an acute ulcer. Such ulcers, however, heal with great rapidity in the normal animal.

Chronic ulcers have been produced experimentally only in rare instances, and it is interesting to note that a clinical application may be drawn only from those experiments in which the physiologic processes of the stomach and duodenum were deranged or upset, especially as regards motility and acid-alkali control at the pylorus.

So many hypotheses have been advanced regarding the etiology of peptic ulcer that it

is impossible to do more than mention them at this time. One of the earliest was advanced by Virchow about 1853. He believed that ulcers in the stomach and duodenum were caused by embolic plugs in the vessels. Repeated experiment has failed to justify this theory. The bacteriologic hypothesis was suggested by Lebert in 1857. Rosenow has made outstanding contributions to this field of investigation in recent years. The auto-toxic theory of ulcer formation has been held by some. Bolton, working with a so-called "gastrotoxin," experimented along these lines. The neurotrophic hypothesis investigated by Vedova, Durante and others has failed to be substantiated by repeated experimentation. The mechanical and chemical theories of peptic ulcer formation have attracted many adherents and the work of Aschoff and Mann has been notable in bringing the importance of these factors to the forefront.

In a careful study of previous work two facts seemed to stand out. First, all acute ulcers made experimentally seemed to heal when undisturbed. Second, chronic and sub-acute peptic ulcers of the duodenum developed in about 90 per cent of dogs in the experiments of Mann and Williamson, who shunted the alkaline bile and pancreatic juices away from the duodenum to the lower ileum. Mann suggested that mechanical factors might explain the site of ulceration and chemical factors its chronicity. McCann has recently made some interesting chemical studies in similar experiments.

Bearing in mind these two facts, I conceived a group of experiments which I shall briefly summarize.

Methods of Experimentation

Only normal, healthy dogs were used. Ether anesthesia and aseptic technique were employed. Intestinal clamps and unabsorbable sutures were never used. Careful necropsies

* Read before the state meeting at Fairmont on May 23, 1928.

were made in all experiments. For making acute ulcers excision of measured areas of mucosa or both mucosa and muscularis seemed to present the most accurate means. Surgical duodenal drainage was established in the following way: The pylorus and duodeno-jejunal junction were severed and both of the cut ends of the duodenum closed by suture. The pyloric end of the stomach and the open end of jejunum were next joined by end-to-end anastomosis. The continuity of the gastro-intestinal tract was thereby re-established. The blind duodenum was then drained into the lower intestinal tract by side-to-side anastomosis with the ileum.

Patches of jejunum for transplantation in the stomach were prepared from small, resected loops with intact mesenteric circulation. Splitting the loop opposite the mesentery furnished a flat patch with its own circulation.

Gastro-enterostomies were performed in the usual way anteriorly and with a short iso-peristaltic loop. This method gives the best function in the dog.

The technique of the roentgenologic examinations of the gastro-intestinal tract was similar to that used in clinical examinations.

Results

GROUP I. *Healing of acute ulcers.* In a few experiments the rapid healing of acute ulcers in the normal stomach and duodenum was verified. Excised areas of mucosa, with or without muscularis, were 2 cm. in diameter. In each stomach four sites were selected, two on the lesser curvature and two on the greater.

There were eight experiments, lasting from eight to fifteen days. In all cases the denuded areas healed rapidly and were completely covered by epithelium in two weeks. Healing in the pyloric region was a little slower than in the fundus and areas along the lesser curvature healed more slowly than any.

GROUP II. *Peptic ulcers of the duodenal type.* In twenty consecutive experiments surgical duodenal drainage was induced. Thereby the alkaline duodenal, biliary and pancreatic secretions were diverted to the ileum and the acid gastric chyme was made to empty into a portion of intestine containing no appreciable amount of alkali.

In every experiment typical subacute and chronic peptic ulcers developed at the usual site in the intestine, from 0.5 to 2 cm. distal to the pylorus and at the point where the acid chyme emptying from the stomach impinged directly against the wall of the intestine. Bleeding and perforation frequently occurred. The earliest ulcer developed in two weeks, the last in the series perforated after four months. Grossly and microscopically and in their relationship to the pylorus these ulcers were identical with ulcers found in the duodenum of man.

GROUP III. *Peptic ulcers in the stomach.* In forty-eight consecutive experiments areas in the stomach were denuded as in Group I and surgical duodenal drainage was established as in Group II. The duration of experiments varied from two days to three months.

In all experiments there was marked delay in the healing of denuded areas in the stomach. Delay was greater in the pyloric region than in the fundus and greatest of all along the lesser curvature. In as high as 62.5 per cent of the more prolonged experiments typical subacute and chronic peptic ulcers developed in areas along the lesser curvature while exactly similar areas on the greater curvature of the same stomach had healed entirely. The usual ulcer following duodenal drainage occurred also, just distal to the pylorus. Perforation was seen frequently.

GROUP IV. *Ulceration on patches of jejunum in the stomach.* In twenty-one dogs patches of jejunum of whole thickness and with intact mesenteric circulation were transplanted into several different sites in the gastric wall; anteriorly and posteriorly and in the lesser and greater curvature. The stomachs were explored at various intervals from thirty-six days to a year and two months. All patches remained normal except for one on the lesser curvature in which superficial erosion was found after five months.

In thirteen of these dogs in which patches in various sites had remained normal for from three months to a year and two months, surgical duodenal drainage was induced. The patches were then observed for further periods from seven days to three months. Except for one patch on the anterior wall

which showed a superficial erosion, all patches remained normal except those on the lesser curvature. Typical chronic peptic ulcers developed in three of five such patches.

GROUP V. *Roentgenologic examinations of ulcers.* In twelve normal dogs repeated roentgenologic examinations of the gastro-intestinal tract were made. Both fluoroscopically and roentgenographically the stomach and duodenum of the dog were quite similar to those of man.

In six of these dogs surgical duodenal drainage was established and roentgenologic examinations made at frequent intervals during the period of ulcer formation. All six dogs developed a peptic ulcer at the usual site just distal to the pylorus. Three of the ulcers were deep chronic lesions and definite niches were depicted in the films. Two of the ulcers were subacute but furnished definite fluoroscopic evidence of their presence. One ulcer was acute and was not diagnosed. Motility and emptying of the stomach did not seem to be deranged except where ulcers were large and organic obstruction occurred.

In one experiment the healing of a large chronic ulcer following gastro-enterostomy was followed easily in the roentgenologic examinations and verified at necropsy.

GROUP VI. *Healing induced by gastro-enterostomy.* In nine experiments chronic and subacute ulcers following surgical duodenal drainage were examined and measured and at the same operation a gastro-enterostomy established. The stoma was designed to empty the greater part of the gastric contents and so relieve the pylorus.

These experiments were from four to sixteen days in duration. In every experiment the original ulcer healed partially or completely. Two typical subacute ulcers healed entirely in ten and fifteen days respectively. Another large, deep, chronic ulcer healed almost entirely in sixteen days following gastro-enterostomy.

Besides the healing ulcers, new, developing ulcers were usually found in the efferent loop of the gastro-enterostomy opposite the stoma at the point where the acid chyme emptying from the stomach impinged most directly.

GROUP VII. *Miscellaneous experiments*

with the production of ulcers. Certain other procedures were employed to interfere with the acid-alkali balance at the pylorus.

Simple ligation of the common bile duct with the resulting exclusion of bile from the duodenum was found to cause ulceration of the duodenum in a high percentage of experiments. Such ulcers, however, were less chronic than those following duodenal drainage.

Because of the recent interest in partial gastrectomy for peptic ulcer, a group of experiments was made in which surgical duodenal drainage was modified by adding the resection of the pyloric half of the stomach and using the Polya or Billroth methods of anastomosis. Ulceration occurred in practically all prolonged experiments and was found at the point where the acid chyme emptying from the stomach impinged against the wall of the intestine.

GROUP VIII. *Miscellaneous experiments with the healing of ulcers.* In a group of ulcers following duodenal drainage healing was accomplished by gastro-enterostomy with pyloric exclusion as used by Mann. Healing was rapid because the ulcer was completely protected. Ulcers formed in the efferent loop of the gastro-enterostomy much more readily than in experiments where the pylorus was not closed.

In other experiments a duodeno-jejunostomy was made and thereby alkali drained back into the region of the ulcer. Prompt healing of the ulcer ensued.

In still another group of experiments healing of typical ulcers followed gastro-duodenostomy. Here again alkali was drained back into the region of the ulcer.

Discussion

Time does not permit a comprehensive discussion of these experiments and an analysis of the various factors which may have played some part in them. I have done this in previous papers.

The factors common to all the experiments were chemical and mechanical. Ulceration developed when part or all of the alkaline juices were excluded from the intestine into which the stomach emptied and therefore from regurgitation into the stomach also.

The site of the ulceration was always at the point where the greatest trauma was administered to the mucosa of the stomach and adjacent intestine by the forces causing the stomach to empty. In the stomach this area is the relatively fixed lesser curvature while in the intestine it is that region just distal to the pylorus. It is of more than passing interest that these are the very same locations in which peptic ulcers are found clinically in man.

SUMMARY

Some of the theories regarding the etiology of peptic ulcer were mentioned. Several groups of experiments were studied.

The inherent power of the normal stomach and duodenum to heal was verified. Subacute and chronic ulcers occurred in 100 per cent of experiments following surgical duodenal drainage. In other experiments duodenal drainage retarded healing in the stomach and typical subacute and chronic ulcers formed on the lesser curvature, in as high as 62.5 per cent of prolonged experiments. Furthermore, patches of jejunum with intact mesenteric circulation transplanted into the stomach withstood the unaccustomed and inimical environment even after duodenal drainage, except when situated on the lesser curvature. Ulceration developed in three of five such patches. Roentgenologic study of the ulcers following duodenal drainage failed to reveal any motor disturbance of the stomach prior to the formation of ulcers.

Healing of peptic ulcers followed gastro-enterostomy. The formation of new ulcers in the efferent loop seemed to show that the large gastro-enteric stoma had assumed the

brunt of the burden of emptying the acid chyme. The original ulcer, being thereby proportionately relieved of irritation, healed.

In some miscellaneous experiments ulcers followed certain other procedures which decreased the amount of alkali in the duodenum. Healing of large, chronic ulcers followed the reintroduction of alkali into the region of the ulcer.

In general, the formation of chronic peptic ulcers of the stomach, duodenum and jejunum followed the withdrawal of alkali from the stomach, and intestine into which it emptied, and the site of the ulcer in each case was determined by the point at which the forces of acid ejections converged. Healing of the ulcers ensued when measures were taken to reintroduce alkali into the region of the ulcer or when the forces of the acid ejections of the stomach were diffused or counteracted. These factors may have some bearing on the etiology and treatment of clinical peptic ulcer.

BIBLIOGRAPHY

1. Bolton, C.: *Ulcer of the Stomach*. London, Arnold, 1913; 396 pp.
2. Cruveilhier, Jean: *Anat. pathologique di corps humain*. Paris, J. B. Bailliere, 1829-1842, 2 vols. Quoted by Bolton.
3. Durante, L.: *The Tropic Element in the Origin of Gastric Ulcer*. *Surg. Gynec. and Obst.*, 1916, vol. XXII, pp. 399-406.
4. Lebert, H.: *De Krankheiten des Magens*. Tubingen, H. Laupp, 1878, p. 180.
5. Mann, F. C.: *The Chemical and Mechanical Factors in Experimentally Produced Peptic Ulcer*. *Surg. Clin. N. Amer.*, 1925, vol. V, pp. 753-775.
6. Mann, F. C., and Williamson, C. S.: *The Experimental Production of Peptic Ulcer*. *Ann. Surg.*, 1923, vol. LXXVII, pp. 409-422.
7. McCann, J. C.: *Chemistry of Experimental Ulcer*. *Proc. of the Staff Meetings of the Mayo Clinic*, 1927, vol. II, pp. 284-286.
8. Morton, C. B.: *Observations on Peptic Ulcer*. I, II and III. *Ann. Surg.*, 1927, vol. LXXXV, pp. 207-238.
9. Morton, C. B.: *Observations on Peptic Ulcer*. IV. *Ann. Surg.*, 1927, vol. LXXXV, pp. 879-885.
10. Morton, C. B.: *Observations on Peptic Ulcer*. V. *Ann. Surg.*, 1928, vol. LXXXVII, pp. 401-422.
11. Rosenow, E. C.: *The Specificity of the Streptococcus of Gastroduodenal Ulcer and Certain Factors Determining Its Localization*. *Jour. Infect. Dis.*, 1923, vol. XXXIII, pp. 248-268.
12. Vedova, R. D.: *Ricerche Sperimentali sulla patogenesi dell' ulcera gastrica*. *Suppl. Policlin.*, 1900, vol. VI, pp. 1153-1156.
13. Virchow, R.: Quoted by Bolton.

EARLY DIAGNOSIS OF TUBERCULOSIS IN THE ADULT *

By J. G. PETTIT, M.D., and G. F. EVANS, M.D.

Hopemont, West Virginia

IT IS very probable that within a short time more than one hundred thousand sanatoria beds will be available for the care of tuberculous patients in the United States, and that

we here in West Virginia will have increased the number now available, about six hundred, to more than twelve hundred.

New buildings soon to be under construction at Hopemont and Beckley will add two hundred. The work of the sanatoria broad-

* Read before the Ohio County Medical Society at Wheeling on March 16, 1928.

casting, as they do with cured patients returned home, that tuberculosis is a curable and preventable disease, is given credit for much of the progress made during the last few decades in reducing the mortality of this dread disease. As long as our sanatoria continue effective towards this end the public no doubt will continue favorable to future construction and support.

However, good citizenship compels us to realize that there are financial limitations in the eleemosynary activities of any state or political unit and that if we are to succeed we must view every endeavor from both an economic and humanitarian viewpoint. It would be impossible and undesirable to place every tuberculous patient in an institution. Our limited facilities should be used for the benefit of that class of patients promising the most from a curative and preventative standpoint.

It should take no argument to convince medical men that preference should be given the early case, yet, perhaps, no superintendent escapes the daily argument that some bedfast patient after an ambulatory period of months, during which time he has come into contact with thousands, has suddenly become a great menace to his community and should be admitted immediately, regardless of that early case he would replace.

Those who are so insistent in behalf of terminal cases overlook the fact that nearly all of our sanatoria were built with the idea of caring for early cases; consequently many of the beds are in quarters inadequate for the care of other than ambulatory patients and that, furthermore, even if this physical barrier did not exist, appropriations do not contemplate the care of a large population requiring an expensive culinary and nursing service.

At Hopemont we are caring for two hundred patients unable to go to the dining room and who require nursing service. Nearly all of these entered the institution more than a year after the onset of the disease.

These patients, less than half our total population, are responsible for more than two thirds of our expenditures. If all of this type applying were placed in line for admission we would never be in a position to accept

a patient without a delay of from three to six months, and our appropriations would have to be markedly increased and the result would be few arrested cases. In fact, I believe the institution would soon degenerate into a home for consumptives.

This condition is not peculiar to West Virginia, as I do not know of any sanatorium management to whom this is not the most discouraging feature of the work.

It does not appear to us that the family medical advisor is most responsible for this unfortunate situation, but rather the failure of the victim to appreciate the gravity of early symptoms and the necessity of early rational treatment in an institution, hence the campaign now being conducted by the National Tuberculosis Association and affiliated organizations is very largely directed to the laity.

We fully realize the truth of the statement made in the last issue of *The State Journal* by Doctor Vest, that the physician can not make a diagnosis early, advanced or what not, until the patient presents himself for examination.

However, we can not avoid the conviction that careless, slipshod methods of diagnosis, failure to evaluate elementary symptoms, blindly clinging to the first diagnosis and fear of adverse opinion and loss of prestige, which might be created by the one doctor who seems to be in every community, always ready to discredit the diagnosis of another physician, are factors responsible for many delayed applications. Our negativistic doctor is a serious problem. Owing to the fact that so many of the laity can not conceive tuberculosis without marked emaciation and a fatal termination, he continues to point out to a credulous laity the alleged errors of the other physician in the patient's case, who, fortunately (as we know many do), obtains an arrested case with little modification of the daily routine.

We do not believe we underestimate the value of stethoscopic and other means of diagnosis, but we are under the impression that too many of our physicians attach too much significance to the presence or absence of certain indefinite signs, without which they feel they can not make a diagnosis. We are also of

the opinion that the virtuosos seen during our college days and occasionally since then, those who claim such precision in locating and labeling every lung lesion, have so impressed the majority of the physicians that they underestimate the knowledge possible for them to obtain if they will but take the time and apply ordinary intelligence in inspection, percussion and auscultation and consider their findings in conjunction with the facts elicited from a history not always obtained without tact, painstaking and time, and the clinical symptoms bringing the patient to the doctor.

In undertaking a physical examination it is essential that the patient should be stripped to the waist, placed in a good light, and to have the examination proceed along definite and methodical lines.

Faulty and hurried methods will fail to disclose what we are seeking, but careful attention to detail and regular procedure will rarely fail to produce results.

Inspection, palpation and percussion are necessary. All variations from the normal are to be noted, and these can be found in any standard text. Auscultation is all important.

The one outstanding sign is the presence of moderately coarse rales, heard after cough or at height of inspiration, above the third rib. Such rales, when localized and persistent, are always due to a tuberculous lesion. Very frequently these rales will be the only sign, and when present will invariably point to a positive diagnosis.

We believe we could say from a tabulation of information we could obtain from the patients now at Hopemont, we could show that not one out of ten of the physicians consulted at home advised them while using the stethoscope to cough after expiration.

Not infrequently do we encounter early and even advanced cases at Hopemont where no adventitious sounds are heard on ordinary or even forced breathing, but more or less vigorous coughing brings out an explosion of rales. No other method so well brings out the full extent of information that may be gained by physical means.

With the lack of outstanding symptoms, the absence of rales precludes the possibility of a definite diagnosis at this time, but with

a history of hemorrhage or pleurisy, such minor signs as deficient expansion and variation of breath sounds are sufficient to clinch the diagnosis. Particular attention should be paid to the upper respiratory tract; tonsillitis or sinusitis may give rise to same syndrome of symptoms as occult tuberculosis. If suspicious, a nose and throat specialist should be consulted.

However, the greatest errors of diagnosis and the least excusable, it appears to us and, we are sure, to all physicians engaged in this work, is the failure to give history and symptoms their proper percentage of valuation.

Fishberg states, "There is hardly a conscientious physician who is not skilled in making a diagnosis of incipient phthisis from the constitutional symptoms."

"There is no active phthisis without fever, cough, tachycardia, languor, night-sweats, hemoptysis. Some of these symptoms are found soon after the patient becomes actively phthisical. If these elementary points are borne in mind by physicians, the number of mistakes of omission and commission would be reduced to a minimum." He states further "that if the propaganda made so assiduously, aggressively and, within certain limits, justly, that to be cured, tuberculosis must be discovered in its incipency, would have insisted emphatically on the symptomatology of the disease, which can be inquired into, observed, and properly interpreted by every practicing physician, all cases coming under the observation of physicians would be detected in proper time."

History so valuable in arriving at diagnostic conclusions in the great majority of cases requires time, tact and diplomacy to elicit facts of significance.

Nine times out of ten the date given by the patient on first inquiry as to the beginning of illness is weeks or months after the onset of symptoms such as easy fatigue, hoarseness, indigestion, anorexia, malaise with periods of improvement and remission and recurrent pleurisy.

A history of hemoptysis is sometimes very difficult to obtain. A history of exposure should be carefully elicited. Those who belong to tuberculous families or who have been associated in childhood with tuberculous carriers should be carefully watched.

Probably over thirty per cent of cases of pulmonary tuberculosis coming under our observation come from this class. Cough, a common accompaniment of active tuberculosis, is frequently denied between hacks.

Young women will often give a history of physical and nervous exhaustion attended by headache, indigestion, insomnia, crying spells, disturbances in the menstrual function. These symptoms mentioned accompany any debilitating toxemia and are but constitutional criteria of the severity of the disease. Of course, the most common chronic constitutional disturbance occurring in a young adult is pulmonary tuberculosis.

Symptoms: The two most predominant symptoms are hemoptysis and pleurisy with effusion. Practically sixty per cent of patients will complain of one or the other of these symptoms at date of first visit.

Other major symptoms are persistent cough with or without expectoration, transient attacks of hoarseness and fistula in ano. These are the most suggestive symptoms of pulmonary tuberculosis and these symptoms are always due to tuberculosis unless proved otherwise.

This holds true in face of previous good health and excellent physical condition. They may be present years before the development of genuinely active tuberculosis.

Speaking of hemoptysis, and by hemoptysis we mean hemorrhage of a drachm or more, Cabbot says: "I do not deny that the causes of hemoptysis are numerous, but the causes of genuinely obscure hemoptysis in temperate climates may be reduced to one: pulmonary tuberculosis."

A word might be said in regard to pleurisy. Practically every one with a pain in the chest calls it pleurisy. It is a word used in a very loose sense not only by the laity but by members of our profession as well; but pleurisy, such as we have reference to in this paper, might be defined as a pain within the chest, usually localized, sharp in character and increasing in intensity with inspiration, so severe that usually the patient will be forced to bed.

Cough which is persistent always demands thorough investigation. The so-called emetic cough is supposedly very suggestive of tuber-

culosis. We have not found it to be common among our patients. There is nothing very pathognomic about either cough or character of expectoration; their significance lies in their persistency.

Almost every person with definite active tuberculosis has some disturbance of temperature, and nothing will repay the physician more than having a suspect keep an accurate record of temperature over a period of three or four weeks.

The patient should be instructed in the procedure of thermometry. We advise our patients to buy a good, standard instrument, to use the same at the hours of 8 A.M., 4 P.M. and 8 P.M. by placing the thermometer under the tongue and keeping it there for at least five minutes. Care should be taken that drink, hot or cold, or food, has not been taken during the preceding fifteen minutes. Rectal thermometry is much superior to the oral method, but we have had very meager success in attempting to introduce this procedure.

The temperature in a case of active incipient phthisis is usually subnormal in the morning, reaching its maximum at about 4 P.M., and declines during the evening, increasing on exercise and subsiding rapidly in bed. The temperature is very unstable, easily upset by digestive troubles, constipation, slight pleurisy, menses, etc. Fever is always an evidence that the disease is not quiescent. Continued high temperature is usually due to the invasion of new areas of lung tissue. An amplitude of two degrees with a subnormal morning temperature should suggest tuberculosis until some other focus has been proven responsible.

If the diagnosis remains in doubt after physical examination and history, then we must seek other means.

The first is the clinical laboratory. If the patient is expectorating, a sputum analysis is imperative.

A twenty-four-hour specimen is best and expectorations should be encouraged, having the patient assume a modified Trendelenburg position for one half hour. By this means a specimen will occasionally be secured from patients who give no history of expectoration. The percentage of positive sputum varies with preciseness and assiduity of the exam-

iner. A positive sputum is the one irrevocable sign of tuberculosis. A negative sputum does not nullify a suspicious history and physical examination.

Blood counts and the like are of little aid.

A Wassermann test should be performed on every suspect, because we know syphilis may simulate any known disease.

Urinalysis is, of course, a routine measure.

It is striking how frequently a low grade nephritis will cause baffling chest symptoms.

The value of the X-ray in diagnosis of strict incipient tuberculosis is a mooted point, but stereoscopic films should be made whenever signs and symptoms are at all obscure. Frequently a well-established lesion is found which gave no hint of its presence by examination or history, but more often our X-ray will be negative.

It is a fact that recently established tubercle in parenchymal lung tissue does not cast a shadow, but when fibrous enclosure begins it is readily diagnosed by this means. The factors in the X-ray plate which give rise to positive diagnosis are the portion of the specialist and have no place in this discussion.

At the state sanitarium very frequently we admit people as tuberculosis suspects who on closer examination reveal an obscure Graves' disease. For this reason, all of our patients, in whom diagnosis is undetermined, are subjected to basal metabolism tests. The result very often confirms our suspicions.

If the various procedures herein enumerated are followed closely the number of suspected cases will be decidedly decreased. Such an investigation occupies some weeks, but certainly when the disease is so obscure as to exhaust the entire diagnostic resources of our profession, such disease can not at the same time be so active and progressive that one need worry regarding the delay.

It is advisable, during this period of examination and observation, to instruct the patient to follow a regime that is calculated to subdue a possibly active focus.

Rest in bed to the fullest extent compatible with the patient's labors is desirable, also the correction of faulty habits of diet and hygiene.

CONCLUSION

In conclusion we wish again to refer to the great desire of every sanatorium management to do everything possible to bring in patients while there are therapeutic possibilities. This nation-wide campaign was fostered by them. In several states clinicians whose services are available for holding clinics in different parts of the state are maintained as a part of the medical staff of the institutions. This appealed to us, and for two years the late Doctor Wildman was maintained on the staff at Hopemont. During this period he held clinics in various parts of the state, examining over five thousand patients, and he was responsible for many coming to the institution in the early stages of the disease.

It was very gratifying to us that physicians would refer their patients to him and that everywhere they were very courteous, but we were disappointed that so few took advantage of the opportunity to help him with the examinations and thus learn the methods of a very competent man.

This work of early diagnosis must not depend on clinicians in the employ of the state. As we see it, but little progress will be made unless the general practitioner arises to the occasion. To this end we have in contemplation a plan we hope to be able to inaugurate next year, if we can find convincing assurance from the medical profession that it will succeed. We hope that by another year our building activities, improvements in grounds, laboratories and other facilities will have progressed to a stage where time will permit and our financial position will have improved so that from two to four physicians will be glad to accept an invitation to come to Hopemont every week, coming on Monday and remaining until Saturday, as guests of the institution, their time to be spent while there in assisting the members of our staff in their examinations and familiarizing themselves with the aims and methods of the institution. If this appeals to the medical profession we do not believe it would be necessary to have clinicians in the employ of the state, holding clinics in various places.

INFANTILE DIARRHEA *

By W. BYRD HUNTER, M. D.
Huntington, West Virginia

IN MY attempt to discuss this condition, I shall follow the etiological classification as taught by the Boston school.

This includes the following:

1. Nervous diarrhea.
2. Indigestion from excess of food as a whole.
3. Indigestion from excess of fat.
4. Indigestion from excess of carbohydrate.
5. Indigestion from excess of protein.
6. Indigestion with fermentation, or fermental diarrhea.
7. Infectious diarrhea.

While any of these conditions may cause diarrhea in infants and young children, I will pass over the first five milder forms and consider the last two severe forms of diarrhea, commonly known as "summer diarrhea," "summer complaint," "cholera infantum," and so forth.

Since these two diseases have many things in common, I will consider them in parallel, so to speak, and try to point out their differences and similarities.

Predisposing Causes: (a) Age. Both are predisposed by age, being usually the dreaded "second summer." This is not due to "teething," as most mothers and some physicians believe, but is the time in a child's life when it goes from a well-balanced food of mother's or modified milk to a diet unbalanced and unsuited to its digestive power. It is the age when the child goes to the table and is given "little tastes" of this and that because it wants them. It is, also, the time of life when the child leaves the crib or mother's arms and crawls around, "seeking what he may devour." The floor is not always clean and you may be sure that whatever he finds, be it a dead fly, rat excrement, the remains of Fido's lunch, manure from father's boot, or what not, it goes into his mouth.

(b) Season. Both are predisposed by hot weather. This acts in three ways: First, as a

child does not require so much fuel in hot weather, there is a relative overfeeding with a predisposing indigestion. Second, hot weather favors the growth of bacteria, both saprophytic and pathogenic, outside as well as inside the body. Third, hot weather predisposes by lowering the child's resistance.

(c) Feeding. Both diseases are predisposed to by artificial feeding. In fact, I have seen only one case of infectious diarrhea in the breast-fed. My severest cases have been "Eagle Brand" babies with rickets and low resistance. In my opinion, ice cream is responsible for more infections than any other food. The fact that it is "vanilla" does not make it less harmful.

Bacterial Causes: Both forms are caused by bacteria. While fermental diarrhea is caused by saprophytic bacteria, normally found in the intestine, infectious diarrhea is caused by true parasites; both forms of the dysentery bacillus, the gas bacillus of Welch, the streptococcus, and *Bacillus pyocyaneus*, introduced from without, in milk or water, or on raw foods or foreign bodies.

Pathology: In fermental diarrhea, the saprophytic bacteria are secondary invaders, the abnormal fermentation takes place in the small intestine, and the pathology is nothing more than a mild catarrhal inflammation. The organisms, acting upon the intestinal contents, neither enter nor pass through the intestinal mucosa. There is neither ulceration nor membrane formation, while in infectious diarrhea the bacteria are primary and true parasites. The large intestine, and the lower part of the small intestine, are involved, and, while there is some fermentation of the intestinal contents, the organisms attack the host. They not only enter but pass through the intestinal mucosa. The pathology consists of catarrhal inflammation, superficial ulceration, hyperplasia and ulceration of Peyer's patches and pseudo-membrane formation.

To my mind, a rough comparison of the pathology of these two diseases is seen in

* Read before the Raleigh County Medical Society, Beckley, W. Va., August 25, 1927.

sapremia and septic infection during the puerperium.

In severe cases of either disease, there may be secondary degeneration of the liver and kidneys, or a complicating otitis media or broncho-pneumonia.

A polynuclear leukocytosis of about twenty thousand is common to both.

Symptoms: The onset is usually acute in both diseases, but may be preceded by indigestion in either. Vomiting is not a usual symptom, but may be present and uncontrollable in either. Loss of appetite and loss of weight are symptoms common to both. A rise of temperature is common to both diseases, but in fermental diarrhea it is higher at the onset and then drops to normal or subnormal, while in infectious diarrhea it is not so high at first but is continuous—more like a typhoid temperature. There may be hyperpyrexia in either disease.

Evidence of abdominal pain is common to both, but more marked in the infectious form, where it is accompanied by tenesmus, straining and prolapse of the bowel. The abdomen is usually distended in the fermental form and sunken in the infectious form.

Meningeal symptoms, varying from stupor and coma to restlessness, muscular twitchings, and convulsions, are common to the severe forms of both diseases. These are due to the absorption of toxic end products. A relative acidosis, due to the loss of fluid and salts, is more common in the fermental form.

Prostration and collapse are symptoms common to both forms.

Diarrhea is the prominent symptom in both diseases, the number of stools varying from twelve to twenty-four or more in twenty-four hours. The chief difference is the absence of blood in fermental diarrhea and its presence in the infectious form.

While the absence of blood neither excludes infectious diarrhea nor proves fermental diarrhea, its presence is proof of an infection. In fermental diarrhea, the nature of the stool depends upon the type of organism and the food element acted upon. If a carbohydrate splitter, the stools are frothy, green, acid, irritating, and contain mucus and soft, fat curds, but no blood. If the organism is proteolytic, the stools are yellow or brown,

alkaline, non-irritating, and very foul. There is mucus but no blood.

In infectious diarrhea, the stools are at first fecal and then composed mainly of mucus and blood. Pus or pseudo-membrane may be present; the color is green or brown, the odor slight, unless much pus is present, when it may be putrefactive; the reaction is usually alkaline. They are non-irritating.

Diagnosis: For successful treatment, it is very essential that not only the two forms be differentiated from each other and other diseases, but it is necessary to determine the food element acted upon.

The chief points in differentiating the two diseases are the fever curve, the character of the stools, especially the presence or absence of blood, and the presence or absence of abnormal fermentation.

Fermental diarrhea is to be differentiated from simple indigestion. In simple indigestion, the symptoms are not so severe, the diarrhea is less, toxic symptoms and loss of weight are not so marked, and a history of overfeeding with one of the food elements can usually be obtained.

Infectious diarrhea is to be differentiated from intussusception. In intussusception the onset, with marked abdominal pain and shock, is more acute, the blood and mucus are homogeneously mixed, all the mucus being blood-stained and resembling currant jelly. Later there is no fecal material in the stool; the temperature is not so high and vomiting is more pronounced, often being stercoraceous. There is involuntary muscle spasm, and often a sausage-shaped tumor is found on abdominal or rectal examination.

The food element acted upon, and upon which the organism thrives, is told, mainly, by gross examination of the stool. A frothy, green, acid, irritating stool points toward carbohydrate fermentation; while a brown or yellow, alkaline, foul, non-irritating stool points toward protein putrefaction. Successful dietetic treatment depends upon this differentiation.

Prognosis: The prognosis in either form is grave, but perhaps more so in the infectious form. In the fermental form, if they survive the first three days they usually recover. Death in the infectious form usually takes

place during the second week. This form may become chronic, with death after many weeks, or a slow recovery marked by relapse.

Treatment: (a) Prophylactic. There is no specific prophylactic treatment for these serious diseases, but in no other field are the opportunities for preventative medicine and life-saving, by simple, common-sense care of babies, so great.

The treatment should begin before the child is born; the expectant mother should be placed in the best possible surroundings. The obstetrician should sit down with the mother and explain the importance of breast-feeding at regular intervals, and the proper clothing and care of the baby during hot weather.

The food of all babies should be reduced during the hot summer months. All milk, unless certified, should be sterilized during hot weather. The water should be boiled. Ice cream, etc., from street vendors should be prohibited. Babies should not be allowed to crawl around in filth and dirt. A play-pen, on a clean floor covering, would prevent much sickness.

(b) Curative. Unfortunately, as yet, we have no specific therapy for these diseases, and at times it is very discouraging and we feel utterly helpless. For simplicity, the treatment of these diseases must be divided into the mild cases, where simple dietetic treatment usually effects a cure, and the severe cases where heroic measures must be used if we are to save our little patients.

In the mild cases, where there is no dehydration, a preliminary catharsis is indicated. For this I use castor oil, in doses proportionate with age, one teaspoonful for each year, to which I add paregoric.

A starvation period of twelve to twenty-four hours is absolutely essential. This acts in two ways: first, it gives the gastro-intestinal tract a rest, and, second, the child will take the food indicated. During the starvation period water should be given freely. If the child is not vomiting, water (sweetened with saccharin, 1 gr. to the quart, is taken better) equivalent to feedings may be given at regular feeding time; but if the child is vomiting it should be given in small amounts and often. I usually order soda-mint water—

an ordinary soda-mint tablet in 2 oz. of cold water—a teaspoonful to be given every five minutes—no more, no less.

At the end of the starvation period these patients must be fed, and, in my opinion, this is the chief part of the treatment and should be directed toward changing the culture medium in the intestine so as to produce an inhibitory action upon the growth of organisms and, at the same time, nourish the child.

We must realize that there are different types of this disease, and that all can not be treated alike. If the stools are acid, frothy, and scald the buttock, the proteid foods, such as the various proteid milks, casein, etc., are indicated, and usually produce excellent results. But, on the other hand, if the stools are alkaline, non-irritating, with blood and mucus, we are dealing with a proteolytic organism, with toxic end products, and these foods are contraindicated. Here I usually begin with cereal water and add $\frac{1}{4}$ skim milk, boiled with cereal water, and cane sugar. If borne well, I gradually replace the cereal water with skim milk and finally add the cream. If all goes well, skim milk, toast, cream of wheat, and, perhaps, baked potato, are added. If, during this feeding, the stools become acid and irritating, the proteids are again indicated.

High saline irrigations, if properly given, act well by flushing the lower bowel and, at the same time, adding to the fluid intake.

If much abdominal pain exists, and especially if there is distention, the old-fashioned turpentine stupes, if properly used, are of decided value. Where there is an ulcer low down, near the anus, with straining and prolapse, ice-cold compresses will add to the comfort of the child; or anesthesone cream, P. D. & Co., applied to the lower bowel, will often give great relief.

It goes without saying the child should have proper nursing, including bathing, clothing, care of the mouth, etc., and should be worked back to its regular feedings by gradually replacing the sick diet with its regular formula.

In the severe cases with dehydration, characterized by pinched, ashen facies, depressed fontanelle, sunken eyes, wrinkled skin which stands up in a fold when pinched, marked

toxemia with vomiting, scanty urine, irregular respiration, etc., it is not a question of catharsis or feeding but a question of administering fluid in every way possible. These children die from lack of fluid. In addition to small amounts by mouth, fluid may be left in the stomach after lavage; in the bowel after high, saline irrigations; may be given subcutaneously, intravenously, or perhaps much better and simpler, intraperitoneally. There is no difficulty, and very little danger, in giving intraperitoneal saline, and in my practice it has been a life-saving procedure.

A gravity apparatus, such as the old salvasan column, with rubber tubing and an ordinary hypodermoclysis or intravenous needle with short bevel, introduced in the median line about one inch below the umbilicus. An infant of one year will take 200 to 300 cc. normal saline.

I have abandoned the use of glucose intraperitoneally, but in the severest cases, with acidosis, I have used glucose intrasinusly together with insulin subcutaneously, with marked results, the moribund infant appearing practically normal a short time later.

If the child is under one year, intrasinus

therapy is comparatively simple and safe if the needle guard is used.

With the exception of preliminary catharsis, in cases without dehydration, I have not mentioned drug therapy because I believe it plays a minor role in these cases, and often does decided harm.

If the stools are very watery and frequent, with great loss of fluid, paregoric, sufficient to quiet excessive peristalsis, is not only harmless but beneficial. I have failed to see where the addition of bismuth has helped materially.

At times it will be necessary to administer quick stimulants, such as camphor or caffeine, but here again water or glucose are to be preferred. Cultures of lactic acid and acidophilus bacillus are probably beneficial in some cases; but, as I have said before, test the reaction of the stool and try to change that reaction by proper feeding after the preliminary catharsis and starvation period.

It is to be hoped that before long we will have a specific for these diseases similar to antitoxin in diphtheria and scarlet fever.

1110-12 Coal Exchange.

INFANT FEEDING *

*By K. M. JARRELL, M.D.,
Beckley, West Virginia.*

IT IS my intention in this paper to discuss the feeding of the normal infant, and not make any attempt to discuss feeding of the sick baby or the poorly nourished, as this is a problem within itself.

There is no fixed rule for feeding of the infant, but there are certain principles which have been worked out on a fairly accurate basis, on which we may begin our feeding, more or less successfully with the average healthy infant.

While my paper will apply chiefly to artificial feeding of the infant, yet I want to state briefly that maternal nursing is of first consideration in the proper care and nourishment of the infant. The mother should be en-

couraged to nurse her baby if possible, and when full maternal nursing is not possible, complemental feeding should be instituted.

The wet nurse is next to be thought of, but in my hands she has not proven a success and I believe this is the consensus of opinion as gathered from the large institutions of our country. While there are some arguments for the nurse, yet in my opinion there is more against her than in her favor.

Before passing from maternal nursing, I want to say that often when the mother's milk begins to fail, it will be stimulated by letting the baby nurse both breasts at each feeding. By this means I have seen mothers able to nurse their baby when otherwise it would have been a failure. The more frequent stim-

* Read before the Raleigh County Medical Society on August 25, 1927.

ulation of the breasts increases the flow of milk.

When maternal nursing fails, in my opinion artificial feeding with properly modified cow's milk is the ideal food, or at least the food of choice. Or we may use some of the standard dried milks as Klim, containing about 4% fat, or Dryco, containing 1 $\frac{3}{4}$ % fat. These may be mixed in the proper strengths for the individual case. In prescribing food for any infant there are three main points for consideration. First, it should contain the proper elements to maintain nutrition and allow growth. Second, it should be digestible. Third, it should contain the proper quantity of food which is best estimated by caloric standards.

No method of artificial feeding can perfectly replace nursing or human milk feeding. This must be admitted notwithstanding the many advances that have been made in infant feeding during recent years.

When breast feeding is impracticable, feeding with properly modified milk of another animal is necessary, and cow's milk is the logical choice.

While cow's milk may be modified to approximate woman's milk in composition, it can never be just the same or just as good for infants, because, there are certain differences which cannot be overcome in modified milk feeding.

There is considerable difference between human and cow's milk and the following analysis will convey this difference.

Alkaline or Amphoteric — Human Milk —
Cow's milk acid

Proteins 1.0 to 1.5%	Proteins 3.5%
Fat 3.5 to 4%	Fats 4%
Sugar 7%	Sugar 4.5%
Salts 2%	75%

You will see that cow's milk contains almost four times as much of inorganic salt as mother's milk. In cow's milk calcium and magnesia are in greater proportions, while in woman's milk potassium and sodium are in greater amounts. Human milk contains about twice as much iron as cow's milk. The curd from cow's milk is usually tougher and in larger masses than in human milk. There are also differences in anti-bodies, ferments, etc .

The milk for infant feeding must come from healthy cows, must be obtained in a clean manner and placed in receptacles, and cooled very soon after milking, and kept cool in order to keep down the bacterial content.

Certified milk produced in accordance with the requirements of the American Association of Medical Milk Commissioners should be required.

Since all attempts made to feed an infant on the food not intended for this purpose are attempts at milk adoption, we know that no single method can possibly meet the needs of all infants. And therefore, it must be an object first to formulate our rules so as to make them safe and adaptable to the feeding of a majority of well babies, leaving the discussion of exceptional and sick babies for further study.

It must necessarily go without saying that the food recommended will be excessive for some and inadequate for others, all infants cannot therefore be treated according to the same rule.

The successful physician must depend on the clinical observations of the individual infant for the success of the method of feeding which he is using. Every formula with which we start feeding should be looked upon in the light of an experiment, and the reaction of the infant to this feeding should be carefully studied. If this is borne in mind many an obstacle to successful feeding will be avoided.

We believe that eventually infant feeding will be placed on a thoroughly scientific basis. This, however, does not answer the pressing needs of today which call for a safe and practical solution of the feeding problem, for the every day baby in every day life. The parents commonly receive feeding advice from baby food manufacturers, and if feeding on one preparation is not successful, there is a rapid change from one proprietary baby food to another with untold detriment to the infant.

In advancing the rules for feeding the normal healthy infant, with further suggestions for the underfed, on simple milk mixtures with carbohydrates added, we desire to state that in our experience we have found them safe for the baby and practical for the physician.

We claim nothing original for these feeding suggestions, as they represent the more common practice of infant feeding as practiced today, which has proven more or less successful from a clinical standpoint.

It has been our experience that about 90% of the infants which come under our observations for artificial feeding will tolerate a wide range of quantitative values in the components of the milk: *i.e.*, fats, proteins, carbohydrates and salts. The simpler the first formula on which the baby is started, the easier we find it to meet its later needs for growth and development, by increasing or decreasing the individual elements in the diet.

The first step for these methods consists in the dilution of whole milk with water, thereby reducing all the ingredients of the milk.

When we compare such a dilution with human milk we find that when protein approximates that contained in the breast milk, the fat is considerably reduced below that contained in the latter. This, we find to be an advantage rather than a disadvantage and if there be an indication for increasing the fat content of the formula, this is easily accomplished by the addition of cream or top milk which is, however, usually not necessary as the deficiency in fat can usually be successfully compensated by adding sugar to the formula.

As a result of dilution, the salts which are about three times as great in quantity in cow's milk are reduced to more nearly the amount contained in breast milk. We must, however, remember that there are qualitative differences in the salt content of cow's milk dilution and human milk.

Feeding should primarily be formulated to promote normal growth and development, to supply energy for the body functions, and prevent nutritional disease.

The normal artificially fed infant should manifest the same clinical evidences of good health and progress as are seen in the breast fed infant.

The baby should be weighed at birth and every week thereafter until one year of age as this is a very important guide to proper growth.

The average baby at birth should weigh 7 lbs. with an 8 to 10 oz. loss the first week, and the weight should be regained by the end of the second week. The weight should double at the end of the 5th month and treble at the end of the year. The average weekly gain during the first five months should be five to eight ounces and during the remainder of the year four ounces per week. An accurate scale is a necessity in proper infant feeding.

In proper infant feeding the chemical composition of the formula is to be considered of equal importance with the caloric value, otherwise, one meets with profound disturbances. Increases of milk in diet must be gradual, the additions being guided by the child's ability to handle the food. It must be remembered that in beginning artificial feeding, we should begin with a formula far less than the caloric requirements, and gradually increase to caloric requirements, keeping in mind, however, the child's capacity for the food.

From what has been stated, it may be inferred that it is wise to establish the protein content in a diet which may then be supplemented by fats, carbohydrates and salts, because, protein is the basic builder and must necessarily be a basic constituent of all diets.

Fats are necessary to the normal growth and nutrition of the human body, but fats can be more easily spared than other food elements, and in part can be replaced by proteins and sugars, more especially the latter. This explains the fact that infants fed on low fat mixtures, more especially proprietary foods such as condensed milk, will continue to gain in weight; however, such development is not normal.

Fats furnish part of the heat energy necessary to maintain the body temperature. Fats are stored as a reserve food. The fat is a protein saver, and when supplied in proper amount but little protein is used for production of heat, thereby allowing for greater protein retention for growth of the body tissues.

Under normal conditions the infant will digest 2% to 3.5% of fats; however, some digest fat badly and when a fat intolerance is once established it is overcome only with great difficulty.

In such cases, it is necessary to throw the burden of furnishing the extra food necessary on the carbohydrates, and carbohydrates in large quantities are unsafe food for the infant. Such a catastrophe should be avoided as infants receiving an insufficient amount of fat rarely thrive well.

It has been the experience of the clinicians that most infants will thrive well on the amount of fat furnished by the use of 1.5 to 2 ozs. of whole milk per pound of body weight. This will supply the requirements for growth and development when combined with sufficient carbohydrates. Carbohydrates or sugars are used chiefly to supply heat and energy, and to supply in part, material for fat foundation, thereby replacing in part the fat waste. Because of their high caloric value they supply a large amount of energy. Sugars are efficient spacers of protein, and they supply energy in case of fat inefficiency in diet. When insufficient carbohydrate is supplied to the body the result is a breakdown of the body protein. In general, infants have a very high carbohydrate tolerance, but some infants do not handle sugar well, and develop gastrointestinal disturbance if the sugar content is too great.

It is estimated that the total amount of carbohydrates should average from 4 to 6 Gm. (one eighth to one fifth ounce) per pound of body weight a day. In addition to the sugar content already in the milk mixture, it will be necessary to add about 3 Gm. or one tenth ounce of sugar to the milk mixture per pound body weight. Carbohydrates needed beyond that furnished by 1 1/4 ounces of sugar should be supplied by well cooked cereals or cereal waters, because, of the danger of fermentative diarrhea.

Infants who have been on a low sugar diet should be accustomed to a gradual increase of sugar content of their food.

In underweight infants the amount of sugar to start with should be calculated on the basis of their present weight, and increased as tolerance permits. In changing from one kind of sugar to another, it is always a safe rule to reduce the quantity for a few days, and then increase. It must be remembered some infants will not tolerate the full amount of sugar on account of digestive

disturbances. If this be the same, substitute part of your sugar by adding cereal waters.

After the third month cereals may be added on the basis of 1/60 to 1/30 ounce flour to each body weight. This to be used in the form of cereal waters, and by its use frequently we will get a rapid increase in weight. As to the form of sugar to be used you have cane sugar, milk sugar and dextri-maltose.

Dextri-Maltose (Meade) has been more satisfactory in my hands. The No. 1 and No. 2 are somewhat constipating, where the No. 3 is somewhat laxative. You have here a sugar which may be used with advantage according to the nature of your feeding case.

Salts are necessary in digestion and in every step of metabolism from absorption to excretion and secretion. Human milk contains 2 Gm. salts against .75 Gm. in cow's milk. All salts except iron are found in greater proportion in cow's milk by one half.

The excessive salt intake does no harm and is merely eliminated. Iron, phosphorus and calcium are the most important salts.

Water—the quantity of water necessary for the infant is not only of theoretical but also of vast practical importance. There are many breast infants who obtain a food which is very rich in nutritional substances, but contains only a small amount of water. These infants may not gain well in weight unless water is added. The lack of proper amount of water is much more dangerous to the infant than a corresponding deficiency in foods.

The infant requires 3 ozs. fluid per pound body weight daily, for example a 10 lb. baby requires 30 ozs. of fluid. If the milk mixture amounts to 25 ozs., then the baby should receive 5 ozs. water between the feedings. If the infant shows a desire for larger meals more water may be added at each individual meal.

Caloric estimations of diet must be considered only as a check on under and over feeding, and not as a method of feeding. It must be remembered that there are considerable variations in the caloric requirements of normal babies. One baby may require more and another less. Each infant must be given individual consideration. The

nutrition of the baby depends upon the quantity of food assimilated and not upon the quantity ingested. The caloric method is a good basis on which to work out a proper mixture but the underfed infants not suffering from marasmus must be fed a food of higher caloric value than that fed to the normal infant.

Experience has taught us that infants will require a minimum of 1 1/2 to 2 ozs. milk per pound body weight daily, except during the early weeks of life when small quantities of whole or skimmed milk are indicated.

In beginning of feeding cow's milk, mixtures must always be started as a weak formula, often using 1 oz. per pound body weight and gradually increasing to meet the infant's needs.

Underweight infants should at first be fed according to their present weight, gradually increasing the strength of the mixture as rapidly as consistent with the baby's ability to handle the diet, and thus approximating the needs of a full weight baby of the same age. These babies will frequently take over 2 ozs. of milk per pound body weight.

In planning the amount to be given at each feeding, a safe rule is one ounce more than the baby is months old, beginning with 1 to 1 1/2 ounces at birth.

Many infants can digest raw cow's milk. When not well taken the tendency to formation of large protein curds is relieved by boiling the milk from two to three minutes, or the addition of sodium citrate to the milk mixture on the basis of 1/2 Gr. to ounce of milk.

The following is a basis for a formula for a baby weighing 10 lbs.:

A baby weighing 10 lbs. would require 15 ounces of whole milk on the basis of 1 1/2

ounces per pound body weight.

A baby requires 1/10 oz. of sugar per pound body weight more than is contained already in the milk mixture.

A 10 lb. baby requires 30 ozs. of liquid in 4 hours on the basis of 3 ozs. for each lb. body weight

Our formula then would be as follows:

Whole milk	15 ozs.
Dextri-Maltose	1 oz.
Water Qs.	30 ozs.

This then would be divided into six feedings of 5 ozs. each 3 hours, or 5 feedings of 6 ozs. each 4 hours.

Or you may use the caloric basis and figure your feeding in this way. The normal healthy baby requires about 45 calories per pound body weight for proper growth and development.

For simplicity we will take a 10-lb. baby as an example and a child of this weight would require about 450 calories daily, knowing that an infant requires about 1 1/2 ounces of milk per pound body weight, and a 10 lb. baby would require 15 ounces milk each ounce equals 20 calories and 15 ounces equals 300 calories.

If we use Dextri-Maltose as our sugar content, it is estimated that each tablespoonful equals 30 calories, we would need 150 calories of sugar to bring up the proper caloric content.

Our formula then would be as follows:

Milk, whole, 15 ounces equals	300 calories
Dextri-Maltose, 5 tablespoonful equals	150 calories
Water, quarts, 30 ounces, total	450 calories

Again it may be well to state that the infant must be fed amounts of fat, protein, carbohydrates and salts and water suitable to its constitution, age and physical development, and in proper proportion to meet the caloric needs.

THE SURGICAL TREATMENT OF PERFORATED PEPTIC ULCER *

By A. G. RUTHERFORD, M.D., F.A.C.S.
Welch, West Virginia

SO MUCH has been said and written regarding perforated peptic ulcer that it seems presumptuous to imagine an audience such as

this could be told anything of sufficient interest regarding it to make it worth while to listen, even for a brief period. Yet—as I know from long experience—the mere fact that much literature exists concerning a given

* Read before the Mercer County Medical Society on October 19, 1927.

subject by no means carries the corollary that we have either the time or the opportunity to read it. Moreover, some of us sometimes forget even that which we have had time and opportunity to read, and don't mind having our memories refreshed now and then. The picture of abdominal ulcers and of perforations into the abdomen was well described in the time of Hippocrates, and after 400 years its management is open today to such a divided opinion as was the recent attempt of Ruth Elder to cross the Atlantic at this time of the year.

We have it on the authority of the eminent English surgeon, Moynihan, that "perforation is the most serious of the complications which can affect a duodenal ulcer." The onset of the symptoms is sudden, the course rapid, and unless surgical measures are adopted early the disease hastens to a fatal ending in almost every instance in about two or three days after the perforation.

It has been said that it is one of the most easily diagnosed acute abdominal conditions, provided the symptoms are known and appreciated. Delay in the diagnosis of appendicitis is regrettable, but does not always cost the patient's life; mistaken diagnosis of an inflamed gall bladder or a pyosalpinx is a dangerous occurrence, but the position may frequently be remedied by a later operation; but in the case of a perforated ulcer a delayed diagnosis, or an incorrect diagnosis which leads to temporizing and delay, is equivalent to a death sentence with very slight chance of reprieve.

The warning signal of an impending perforation is well known to all of you, and this is, that whenever a patient who has complained at intervals of indigestion begins to suffer in the present attack more acutely than in an earlier one, perforation may be impending, and the closest observation is very often rewarded.

The intensity of the pain of a perforated gastric or duodenal ulcer is comparable only to that of a gunshot wound of the abdomen. It is a most agonizing and unendurable pain. The patient usually lies in the position he was in when the pain struck him, or he may feel faint and fall down in syncope. Coffey, of Oregon, cites a case of a man who

was crossing the street when he felt the pain, and, lying flat on the ground, willingly preferred to take the chance of being run over by passing vehicles rather than be moved from that position of comfort.

The pulse temporarily is small and feeble, the face livid, the extremities cold, and the thermometer will register a subnormal temperature. The face shows pain and anxiety, and the afflicted may cry out in his agony. This trend of initial symptoms constitutes the stage of primary shock. The tense rigidity of the whole body is in striking contrast to the disorderly motions of a patient who is suffering the agony of a renal colic or a gallstone colic. The most insistent appeal for gentleness is made, and the approach of the hand to the abdomen for examination is quickly resented. Over the site of the ulcer the rigidity of the abdominal muscles is most impressive.

Hand in hand with these signs goes the change in respiration. The breathing becomes short, jerky and shallow, and the patient may cry out that he can not breathe. This change in the respiratory equilibrium is attributed to the spasm of the diaphragm, and to the distension as the fluid or blood enters the abdominal cavity from the site of the perforated ulcer.

As the intensity of the initial shock subsides, comes the stage of reaction; the patient then looks better and feels more comfortable. The circulatory system recovers to such an extent that the limbs may become warmer, the face normal in color, and the pulse normal in frequency and strength, while the thermometer may show no indication either of subnormality or fever. The improvement in symptoms does not imply any stoppage of the pathological process, and often the family and all interested are led to believe that real improvement was taking place. Upon the proper appreciation by the physician of this dangerous latent period depends the patient's chance of recovery from the disease. It is in this stage that Will Mayo says "the inexperienced house surgeon thinks he has made a mistake in summoning the surgeon so urgently, and almost apologizes for having brought him up needlessly." It is at this period that the favorable opportunity for

operation comes; "Recourse to surgical treatment then offers the best hope of recovery." This pronouncement was made nearly twenty years ago, and the situation today remains unchanged. Deaver has reduced this opinion commonly prevailing to the following aphorism: "Better an early operation by an indifferent surgeon than a late operation by a master."

After the stage of reaction begins to abate, no certain guide is to be obtained from the pulse and temperature, for they are frequently normal; nor is the patient's own opinion of his condition always to be trusted, for he often expresses himself as feeling much better, and may even begin to think lightly of his condition. But his attitude and acts will always belie his words. Relief will be sought by the drawing up of the legs, and if he be asked to turn over in bed the attempt is made cautiously and with evident dread of increasing the pain.

In summary, there are in all five observations, some or all of which give valuable indication of the serious intra-abdominal mischief after a perforation. The abdominal wall is rigid and tender; respiration shallow and of the costal type; the pelvic peritoneum is tender, and there may be free fluid and free gas in the peritoneal cavity.

At first the symptoms of a perforated duodenal ulcer are precisely similar to those seen in cases of perforated gastric ulcer. After the first hour has passed the symptoms of these two conditions begin to differ in their development. When the ulcer is in the stomach, the signs are those of a general peritoneal involvement; when the ulcer is duodenal, the course taken by the extravasated fluids leads to a more acute and an earlier involvement of the peritoneum on the right side, and in the right iliac fossa, and the clinical picture of appendicitis is copied with such accuracy that the primary incision has been made on the site of the appendix in thousands of cases.

The internists and the surgeons are still far apart in their estimation of the necessity for the surgical treatment of gastro-duodenal ulcers, and of the value of such treatment; but in the case of a perforated peptic ulcer there is but one universal opinion—surgical

intervention is urgently and consistently demanded.

They agree also that the per cent of discovery is in direct proportion to the promptness of operation. If operation be undertaken within the first six hours, recovery is the rule; if the opening of the abdomen be delayed for twelve hours, recovery is doubtful; if twenty-four hours or more elapse prior to suture of the ulcer and drainage of the abdomen, the death of the patient is to be expected.

When we come to a consideration of just what operative procedure is to be employed, we are obliged to jump from the firm ground of united opinion to the quicksands of widely varying personal preference.

In the main there have been three procedures which have constituted the pendulum of surgical opinion, and they are:

1. Simple gastrorrhaphy, *i.e.*, suture of the edges of the ulcer with or without excision of the ulcer.

2. Closure of the ulcer with or without gastroenterostomy.

3. Cauterization of the ulcer, then bringing the edges together and covering the line of sutures by a fold of the hepatic omentum.

A brief resume of the existing controversy will show you how far from any standard in the surgery of perforated peptic ulcer the American medical profession still stands.

We know that packing around the seat of the perforation with drainage of the abdomen was the method employed in the infancy of surgical technique, and this is still applicable today where the tissues are too friable to hold a suture, or when the condition of the patient does not permit of anything further being done.

Simple stitching of the hole, covering the area with omentum, followed with abdominal drainage, is the next simplest procedure. But Deaver, while asserting that direct closure by suture is absolutely essential in every type of perforated peptic ulcer, does not consider this procedure alone to be sufficient in any case, and, many years ago, adopted primary posterior gastroenterostomy as a feature of the operation. Charles Mayo and Crile have expressed their opinions against this practice.

In general, surgeons are agreed that excision of acute perforated ulcer, as ordinarily

seen a few hours after its occurrence, adds time and trauma to the operation. Yet Balfour of the Mayo Clinic, in 1921, presented the advisability of cauterizing the ulcer, a procedure which has been favorably received in the surgical management of the simple type of gastro-duodenal ulcer.

Drainage of the peritoneal cavity in these cases is not practiced by many able men, among them being Wainwright, one of the best-known railway surgeons in the United States.

In the face of such a wide variance of opinion, one seeks in vain for an authority which will provide him with an unfailing staff upon which to lean. When the life of a man or woman with a hole in the stomach, or duodenum, has been entrusted to any one of us, to call more than one of the "masters" in consultation is to invite a divided opinion, and the conscientious surgeon must judge each case on its individual merits, and he will succeed or fail according to his own ability and diagnostic acumen.

INFANT FEEDING *

By G. G. HODGES, M.D.
Kilsythe, West Virginia

THE object of this paper is to bring before you some simple rules to govern the feeding of the majority of babies to be artificially fed. Of course breast feeding should never be discontinued when it is possible to avoid it.

Some of the contra-indications for breast feeding are:

First: When there is a prolonged gastric or intestinal disturbance with loss of weight or failure to gain.

Second: Where for two previous births the mother has been unsuccessful in nursing the infant under proper conditions and intelligent care.

Third: Where mother has puerperal convulsions.

Fourth: Where the mother is pregnant.

Fifth: Where the mother has a prolonged acute infectious disease, as typhoid, etc.

Sixth: Where the mother has tuberculosis, epilepsy, nephritis, or malignant disease, and when mother or child contract syphilis after birth.

Indications for temporarily discontinuing breast feeding are:

First: In some cases of acute vomiting in the infant.

Second: In some cases of acute diarrhea in the infant.

Third: Some acute illness of the mother.

Fourth: In selected cases during menstruation.

The following points in history should be taken:

First: Feeding history of previous children.

Second: How long breast fed.

Third: Food previously taken.

Fourth: Number of feedings—intervals, and quantity of food taken.

Fifth: The bowels.

(a) How long have they been in present condition.

(b) Number of stools.

(c) Color.

(d) Consistency.

(e) Presence of mucus.

(f) Curds.

(g) Blood.

(h) Use of cathartics.

Sixth: Vomiting.

(a) Duration.

(b) Quantity.

(c) Time (before or after eating).

(d) Character—projectile.

Seventh: Appetite.

(a) If all food is taken.

(b) How much is thrown away.

(c) Does baby seem satisfied.

Eighth: Sleep.

(a) Morning.

(b) Afternoon.

(c) Night.

* Read before the Fayette County Medical Society, October 28, 1927.

Physical Examination.

First: Weight. Normal infants gain six to eight ounces a week under six months, three to four ounces over six months. Their weight is doubled in six months and trebled in one year.

- (a) Birth weight.
- (b) Lowest since birth.
- (c) Present weight.
- (d) Gain or loss each week.

Second: Color—Pallor is seen in difficult feeding cases.

- (a) Fat babies over six months of age fed on condensed milk.
- (b) Prolonged indigestion.
- (c) Atrophy—Marasmus.

Third: Skin—Wrinkled, inelastic skin is a bad sign. Scaling, roughness, furunculosis and eczema is seen in difficult feeding cases.

Fourth: Development.

- (a) Fat.
- (b) Well nourished.
- (c) Moderately well nourished.
- (d) Poorly nourished.
- (e) Emaciated.
- (f) Atrophic (dried up).
- (g) Poor muscles.
- (h) Undersized.

Fifth: Temperature.

Sixth: Mouth.

- (a) Stomatitis.
- (b) Red mouth.
- (c) Tongue.
- (d) Teething.

Seventh: Facial expression.

Eighth: Heart and lungs.

Ninth: Abdomen.

- (a) Distension.
- (b) Sunken abdomen.
- (c) Loss of abdominal tone.
- (d) Spleen, liver, etc.

Tenth: Evidence of Rickets. Head—

- (a) Very large.
- (b) Abnormally large fontanels.
- (c) Delayed closure of fontanels.
- (d) Box-shaped head.
- (e) Bald spot on back of head.

Chest:

- (a) Beading.
- (b) Pigeon breast.
- (c) Flaring of ribs.

(d) Harrison's groove.

(e) Soft ribs.

Extremities—

(a) Enlarged epiphyses at wrist and ankle.

Directions for making babies' food.

First: Write all directions.

Second: Write number of ounces of milk, water, sugar and other ingredients.

Third: Make up 24 hour amount of food at one time.

Fourth: Divide total into as many bottles as there are to be feedings in the 24 hours.

Fifth: State quantity at each feeding, intervals and exact time each feeding should come.

Direct mother to purchase eight or ten bottles, three or four nipples, measuring glass, bottle brush, etc. Give directions for care of bottles, nipples and food.

Three essential requirements for the food.

First: It should contain proper elements for nutrition and allow for growth.

Second: It should contain the proper quantity of food which is best estimated by calories.

You know the proper elements of food which milk must contain. Proteins, fats, sugars, mineral salts, water and vitamins.

Breast milk contains three to four per cent fats, six to seven per cent sugar, one to two per cent protein. Cow's milk made of this proportion is not easily digested. Fats, sugars and proteins are interchangeable to a limited extent. Cow's milk diluted one half gives one and one half percent proteins. Approximately mother's milk. Cow's milk diluted one half gives two per cent fats, which is less than mother's milk—this is made up of sugar. Cow's milk diluted one half gives but two per cent sugar, so this is made up by addition of sugar. Both cow's milk and mother's milk are abundant in mineral salts.

Water: Food of all young mammals contains from 80 to 90 per cent water.

Vitamins: At present four—Fat soluble A, Water soluble B, Water soluble C, Fat soluble D.

Fat Soluble A.—A deficiency in this vitamin is noticed in malnutrition and im-

proper growth. This vitamine is present in large amounts in cod liver oil, yolk of egg, cream, butter, and glandular organs, and absent in vegetable fats.

Water Soluble B.—When absent from diet produces beriberi and polynuritis. This vitamine is found in vegetables, milk, nuts, yeast and germ of grain. Also found just beneath the skin of potato.

Water Soluble C.—When absent or deficient scurvy is produced. This vitamine is found abundant in fruit juices, yellow turnips and cabbage.

Fat Soluble D.—Is found in cod liver oil, and recent work on this subject proves that rickets is due to the lack of fat soluble D instead of fat soluble A.

Simple milk, sugar and water is found to be the easiest digested. The proteins are more easily digested if boiled three minutes. Also by acidifying,—as lactic acid milk or sour milk. Usually boiling three minutes is all that is necessary.

Fats.—A mixture of cow's milk containing 4 per cent, as mother's milk is not easily digested. But when diluted one half contains two per cent fat. This amount can be digested with ease.

Sugar.—This is the most frequent source of indigestion. Cane sugar is preferred with infants with no gastro-intestinal disturbance, while malt sugar (as Dextri-Maltose or Karo Syrup) is preferred with infants having had gastro-intestinal disorders. No sugar at all (temporarily) with infants with diarrhea or severe vomiting.

An infant under 11 pounds in weight should receive one ounce of sugar in 24 hours, over 10 pounds one and one half ounces of sugar. This gives a mixture of 6 to 7 per cent, the same as mother's milk. In diarrhea, vomiting and loss of appetite discontinue sugar temporarily. The rapidity in increasing sugar up to the amount mentioned depends upon whether the baby has formerly had sugar or not; whether the sugar is being changed, also previous diarrhea or vomiting.

Food may be compared to fuel in a furnace. A ton of coal represents a definite number of calories. An ounce of milk rep-

resents a definite number of calories. This is a term to express food values.

1 ounce milk—20 calories.

1 ounce skim milk—12 calories.

1 ounce Klim—149 calories—Tablespoonful—40 calories.

1 ounce Dryco—127 calories—Tablespoonful—16 calories.

1 ounce sugar—120 calories all kinds of sugar by weight.

2 level tablespoonfuls of cane sugar—1 ounce.

3 level tablespoonfuls milk sugar—1 ounce.

4 level tablespoonfuls Dextri Maltose—1 ounce.

4 level tablespoonfuls flour or 1 ounce—100 calories.

All babies do not require the same number of calories. Fat babies over four months of age need 40 to 45 calories per pound weight. Average infant under four months, and moderately thin infants require 50 to 55 calories per pound weight. Emaciated infants require 60 to 65 calories per pound weight.

To determine the number of calories a baby needs in 24 hours multiply the weight of the individual infant by the caloric requirement. Example:—Average infant three months old weighing 12 pounds needs 50 calories per pound $12 \times 50 = 600$ total caloric requirement in 24 hours. To determine the amount of milk needed in 24 hours subtract the caloric value of sugar (which is a fixed quantity) from the total caloric requirement. This infant needs 600 calories—180 ($1\frac{1}{2}$ ounces of sugar) are sugar— $600 - 180 = 420$ calories of milk needed.

To determine the number of ounces of milk needed in 24 hours, divide the number of calories of milk 20 (one ounce of milk—20 calories) $420 \div 20 = 21$ ounces. To determine the amount of water, subtract from the 24 hours amount of food the individual infant can take, trying to make the dilution no more than half and half for an infant under 10 pounds, or those who have recently recovered from vomiting or diarrhea.

To determine the 24 hour quantity of food

multiply the number of feedings by the number of ounces taken at a feeding.

The quantity of food given at a feeding is from one to two ounces more than the number of months of the infants age, with a maximum of 8 ounces and minimum of 3 or 4 ounces. Undersized infants sometimes can only take 1 ounce for each month of their age.

The number of feedings in 24 hours during the first four months is usually seven, 6 - 9 - 12 a. m., 3 - 6 - 10 p. m., 2 - a. m.; after four or five months of age six feedings, 6 - 9 - 12 a. m., 3 - 6 - 10 p. m. Undersized and feeble infants under 4 months may be given 10 feedings in 24 hours—perhaps one ounce or a little more—6 - 8 - 10 - 12 a. m., 2 - 4 - 6 - 8 - 10 p. m. and 2 a. m.

Some conditions in which the caloric requirement should not be fulfilled:

First: In the newborn for the first two weeks.

Second: Normal infants abruptly weaned from breast until this tolerance can be increased.

Third: Infant whose previous food has not been cow's milk (until milk and sugar can be gradually increased).

Fourth:: Infants who have been overfed until their digestive organs have been given a chance to recuperate.

Fifth: Infants who have been underfed, until their tolerance for food has been gradually increased.

Sixth: Infants who have diarrhea or have recently recovered from diarrhea.

Seventh: Infants who have excessive vomiting or those recovering from vomiting.

Eighth: Infants with loss of appetite.

Ninth: Infants taking partly breast.

ABSTRACTS

Rheumatic Fever

JAMES CRAIG SMALL, M.D.

Amer. Jour. Med. Sc., 1928, clxxv, 638.

Cardiovascular disease now leads the list of the causes of death in the United States. The rheumatic chain of infections is responsible for the majority of heart diseases. It is therefore with great hope that the efforts of the corps of workers under the direction of Dr. James C. Small, director of laboratories of the Philadelphia Hospital, is being closely watched, and that other workers have undertaken to prove or disprove his findings. We have been warned not to be too enthusiastic concerning the work of Dr. Small and his associates. Dr. Small, however, has continued his study, has developed two wards of eight beds each, devoted to the study of the rheumatic infections and their treatment, and has enlisted the services of a capable commercial biological organization for the production of sera and vaccines on a sufficiently large scale to enable him to come to conclusions in a large series of cases. This abstract is prepared from a report based on the study of 232 patients.

Abstract: In January, 1927, the author first directed attention to an organism designated as streptococcus cardioarthritidis with distinctive cultural and immunological characteristics. Up to the present the organism has been recovered in three active cases of rheumatic fever, and has been found regularly in throat cultures of patients with rheumatic fever and chorea. When inoculated into rabbits and horses this organism produces lesions in the myocardium, pericardium and cardiac valves, in the joints, their bursa, or within the tendon sheaths, and in the central nervous system. The blood serum from animals and patients with rheumatic fever possesses definite agglutinating power for the specific organism. It has been noted that the titer of opsonins closely parallels the patient's clinical condition. Bovine, as well as equine, antisera are being prepared. When the equine serum has been unsuccessful, the bovine has given excellent results. Concentrated bovine serum is in the process of preparation. In Sydenham's chorea the most striking responses appear. Relapses following the passive immunity resulting from the antisera

resulted in the preparation of vaccines which have been used in building up an active immunity, following which the relapses have become much less frequent. Curiously, the untoward symptoms following vaccine administration were controlled by adequate administration of salicylates.

A close parallelism has been observed between the development of increased tolerance to the vaccine or the soluble antigen and the clinical improvement of the patient. The author believes it is improbable that a local skin test for susceptibility will ever be developed. It has been found that patients with chronic arthritis showing marked general and focal symptoms following a subcutaneous injection of a small amount of the soluble antigen of streptococcus cardioarthritidis will be definitely benefited by the antiserum, followed by properly regulated courses of injections of the soluble antigen. The test is without danger and usually causes him no more discomfort than he has previously suffered on many occasions. The following case report is chosen from a group of reports the author included in his paper because of the striking response to antirheumatic serum.

M. C. B.

Pleurisy

Dr. O. Scheel, of the Municipal Hospital, Ulleval, Oslo, Norway, cites a case of a woman, forty-two years of age, who, on admission, showed the usual signs of exudative pleurisy, dullness on the left side of the back, increasing toward the base, with marked bronchial breathing in the dull region and absence of tactile fremitus. The actual commencement of the pleurisy may be referred back to a week prior to her admission, when she suddenly became ill with shivering and stitch in her left side, and from that time on was confined to her bed. Such a beginning is not rare and may remind one of pneumonia. Before the actual commencement of the pleurisy the patient had been unwell for three months and felt pain in her left shoulder, under the collarbone and along the costal margin on the left side. Before attempting to explain the origin of these symptoms, digression must first be made

towards a distinct form of pleurisy, namely, *diaphragmatic pleurisy*, in which the pain is felt especially in two places, along the edge of the ribs from the front of the chest round to the back and in the shoulder on the same side. It is not probable that the patient had a diaphragmatic pleurisy for three months. It is more reasonable to suppose that the phrenic nerve in the first three months has been affected at another place, at its passage through mediastinum when it goes just in front of the main bronchus. There are supposed to be three phases in the development of the pleuritic exudate. During the first, fluid is exuded from the blood to the pleural cavity, the exudate increasing; in another, the height of exudation is reached and no more fluid is exuded; and in a third the fluid is absorbed into the blood, the exudate decreasing and disappearing. Doctor Scheel is inclined to believe that the exchange of fluid between the blood and the pleural exudate takes place in another manner and especially in a way similar to that between the blood and edema. He thinks the different localization of pleural exudate and of tuberculosis in the lung tissue has a common cause, the varying elasticity and mobility of the lung tissue in the various parts of the lung. He states, regarding the diagnostics of pleurisy, that they rarely employ exploratory puncture of the exudate, because as a rule it is superfluous and harm may be done by puncture of a tubercle group, thus spreading tubercle bacilli in the exudate. Regarding treatment, confinement to bed is most important. Death rarely occurs during the acute stage and when it does is probably due to embolism of the lung. After the patient has been free from temperature for fourteen days he is allowed to get up, and after discharge should go to the country for three months. Patients with pleurisy are often subsequently attacked by tuberculosis, but it is difficult to give definite figures regarding this. According to statistics, the prognosis after pleurisy is more favorable than is believed, the most dangerous years being the first three or four, the figures for morbidity and mortality being higher for the grown age than for that of childhood.—*International Clinics*, December, 1927.

TUBERCULOSIS ABSTRACTS

(Copy furnished by the West Virginia Tuberculosis and Health Association)

Rest Is Relief From Strain.

Rest may mean the sloth of the indolent or the relief from tension that follows change of occupation, says Allen K. Krause. Therapeutically, however, rest represents *relief from strain*. Treatment must aim to limit and confine the activities of tuberculosis foci and to reduce to zero or a minimum the absorption of harmful focal products. At any time, undue stress may stir quiescent foci into renewed activity. It is axiomatic that uncontrolled movement of a diseased or injured part will promote the spread of the disease and delay recovery. To stop the progress of tuberculosis foci is to cure tuberculosis.

Fever, fatigue, loss of appetite and other constitutional symptoms of tuberculosis are manifestations of intoxication resulting from absorption of focal substances. The rate and capacity of this absorption depend on the circulatory and respiratory activities of the body. Rest brings about a diminution of physiological demands and reduces the amount of focal absorption.

Rest for the sick man is better "tonic" than exercise. As a result of prolonged rest, the appetite returns, the fever falls and a sense of well-being sets in, while depleted reserves are built up, thus assisting in the healing of the foci. Rest is a potent medicine, to be prescribed according to the requirements of each individual case by a physician who understands its use.

The febrile, acutely ill cases must have absolute bed rest for at least two weeks after the temperature has returned to normal. After the constitutional symptoms have disappeared, the patient must still be kept below the fatigue line. The fatigue line is an individual affair, registered only in the patient's own consciousness. The duty of the physician is to explain to the patient why relief from strain is important. But there

can be no set formula for the individual patient; he must rely on his own intelligence and behavior. Rest should be so engraved on the patient's mind that he will automatically respond with rest to the first symptom of fatigue.

Sanatorium treatment is vastly more satisfactory for the majority of patients since the rest and discipline and the means of insuring these are more readily obtainable there. The sanatorium, moreover, teaches and trains the patient how to care for himself.—*Rest and Other Things*, Allen K. Krause, Williams and Wilkins Company.

Food Requirements and Fresh Air.

Good nutrition is important, but "stuffing" the patient, as formerly practiced, is a mistake. Overeating is like clogging an engine with unburnt carbon by using too much fuel. Sometimes, the appetite must be cajoled. Three good meals a day, two or three glasses of milk (with or between meals), one or two eggs a day, are often sufficient to add enough to the patient's weight to bring him the gain wished for. A good general rule is that the least amount of food that will enable any patient who is under weight to gain up to and slightly beyond the normal weight is the optimum diet for that patient.

Fresh air as a "cure" for tuberculosis has probably been overemphasized by the laity. It is, however, an essential aid to recovery. Outdoor air is a mild and beneficial stimulant. Sleeping out of doors does not necessarily hasten recovery, provided eight to ten hours a day are spent in the open air and the night passed in a well-ventilated room. Mere dryness of the air is of little avail. Temperature, humidity and air movement determine the quality of indoor ventilation.—*Rules for Recovery from Tuberculosis*, Lawrason Brown, Lea & Febiger.

THE WEST VIRGINIA MEDICAL JOURNAL

JAMES R. BLOSS, *Editor-in-Chief* - - - - - Huntington

...ASSOCIATE EDITORS...

J. HOWARD ANDERSON
Marytown

WALTER E. VEST
Huntington

C. A. RAY
Charleston

HARRY M. HALL
Wheeling

THE JOURNAL issued on the first of each month. Entered as second-class matter, January 1, 1926. Acceptants for mailing at special rate of postage provided for in Section 1103, Act of October 3, 1917. Authorized July 24, 1919.

Subscription to Members.....	\$2.00 Per Year
Subscription to Non-Members.....	\$3.50 Per Year
Single Copies.....	50 Cents

OFFICERS

<i>President:</i>	
C. A. RAY.....	Charleston
<i>First Vice-President:</i>	
D. G. PRESTON.....	Lewisburg
<i>Second Vice-President:</i>	
E. L. ARMBRECHT.....	Wheeling
<i>Third Vice-President:</i>	
W. C. SWANN.....	Huntington
<i>Executive Secretary:</i>	
MR. JOE W. SAVAGE.....	Charleston
<i>Treasurer:</i>	
T. MAXFIELD BARBER.....	Charleston
<i>Delegates to A. M. A.:</i>	
JAMES R. BLOSS (1927).....	Huntington
HENRI P. LINSZ (1927-28).....	Wheeling
<i>Alternates:</i>	
A. A. SHAWKEY (1927).....	Charleston
HARRY M. HALL (1927-28).....	Wheeling

COUNCILLORS

<i>Chairman of the Council for 1928:</i>	
R. H. DUNN.....	South Charleston
<i>First District:</i>	
H. R. JOHNSON (1-year term).....	Fairmont
C. G. MORGAN (2-year term).....	Moundsville
<i>Second District:</i>	
C. H. MAXWELL (1-year term).....	Morgantown
C. H. HALL (2-year term).....	Elkins
<i>Third District:</i>	
JOHN FOLK (1-year term).....	Bridgeport
I. D. COLE (2-year term).....	Clarksburg
<i>Fourth District:</i>	
J. E. RADER (1-year term).....	Huntington
W. E. VEST (2-year term).....	Huntington
<i>Fifth District:</i>	
J. HOWARD ANDERSON (1-year term).....	Marytown
H. G. STEELE (2-year term).....	Bluefield
<i>Sixth District:</i>	
R. H. DUNN (1-year term).....	South Charleston
H. A. WALKUP (2-year term).....	Mt. Hope

☐ All original articles for THE JOURNAL must be made to it exclusively. Communications and items of general interest to the profession are invited from all parts of the state. Notices of deaths, removals from the state, changes of location, etc., are requested.

☐ Our readers are requested to send marked copies of local newspapers containing matters of interest to members of the medical profession. Name of sender should be given.

CONTRIBUTIONS TYPEWRITTEN

☐ Contract with present printer specifies all articles, communications, etc., MUST BE TYPED.

ADVERTISEMENTS

☐ Advertising forms will go to press not later than the tenth of each month. All advertisements must conform to the standard established by the Council of Pharmacy and Chemistry of the A. M. A.

WOMAN'S AUXILIARY

Mrs. R. V. Shanklin, Gary, President; Mrs. T. H. Harris, Parkersburg, vice-president; Mrs. W. C. Swann, Huntington, secretary; Mrs. W. D. Simmons, Slab Fork, treasurer.

Councillors

Mrs. C. G. Morgan, Moundsville, first district; Mrs. Ralph Maxwell, Morgantown, second district; Mrs. H. D. Price, Parkersburg, third district; Mrs. J. R. Bloss, Huntington, fourth district; Mrs. A. G. Rutherford, Welch, fifth district; Mrs. E. S. DePuy, Beckley, sixth district.

Delegates to Woman's Auxiliary of A. M. A.

Mrs. R. V. Shanklin, Gary; Mrs. B. S. Preston, Charleston. Alternates—Mrs. George Jeffers, Parkersburg; Mrs. W. B. Scherr, Morgantown.

STANDING COMMITTEES

Medical Defense Committee

C. G. Morgan, Moundsville, Chairman; H. A. Walkup, Mt. Hope; H. G. Steele, Bluefield.

Committee on Scientific Work

R. U. Drinkard, Wheeling, chairman; O. B. Biern, Huntington; A. H. Hoge, Bluefield.

Public Policy and Legislative Committee

R. A. Ireland, Charleston, chairman; R. H. Walker, Charleston; James McClung, Richwood; C. R. Ogden, Clarksburg, D. A. MacGregor, Wheeling.

Committee on Medical Education

John N. Simpson, Morgantown, chairman; W. T. Henshaw, Charleston; W. S. Fulton, Wheeling.

Committee on Professional Relations

John R. Shultz, Charleston, chairman, (1-year term); A. G. Rutherford, Welch, (2-year term); W. R. Goff, Parkersburg, (3-year term); Hugh G. Nicholson, Charleston, (4-year term); E. P. Smith, Fairmont, (5-year term)

Workman's Compensation Committee

W. A. MacMillan, Charleston, chairman; J. Ross Hunter, Charleston; R. H. Walker, Charleston.

Committee on Public Health

David Littlejohn, Charleston, chairman; John Thames, Charleston; Will McLain, Wheeling.

Surgical Section

Wade H. St. Clair, Bluefield, chairman; John E. Cannaday, Charleston, secretary.

Eye, Ear, Nose and Throat Section

E. C. Hartman, Parkersburg, chairman; I. D. Cole, Clarksburg, secretary.

Hospital Association Officers

H. F. Spillers, Wheeling, president; L. W. Lawson, Logan, president-elect; J. E. Wilson, Clarksburg, first vice-president; R. A. Ireland, Charleston, second vice-president; J. S. Turk, Wheeling, treasurer.



EDITORIALS



The Chain Store Idea

Casually approaching the profession of medicine, the observer would see little to interest him in connecting it with the numerous grocery stores which are linked up in several big organizations the country over.

There are phases of medical practice that are remotely similar to chain store customs but as yet they are so obscure and have so little to do with ninety-nine per cent of practitioners that they are perhaps negligible. Here and there one might run across a man or even a group who would offer to do work at a figure very much under the established fee in a given community and such relief might be first class and the results all that could be desired, but we have never heard of such agencies being linked up with each other from state to state, unless it would be by way of the kind of fraternal organization which has a health feature.

Many of the irregulars having an organization have purported to step in and afford cures in much less time and at less cost than the regular profession but as it is generally conceded that they are approaching oblivion it need not be considered. Except in isolated cases and in certain localities the chain store idea has not touched the medical profession. However, there are certain other avenues leading to the activities of the medical profession, which are somewhat clouded with this issue. Just as rapidly as it can be affected, the drug stores are being absorbed. This has not touched West Virginia yet, but it will. Cleveland, Ohio, is going through it now and many other places particularly in the south, we understand, are being put under one direction.

Just what will happen is problematical. Say you wanted a particular brand of Digitalis and the associated stores felt they had one of their own just as good and therefore

decided not to handle so many? They would politely say, "we don't have it." Where would you go if they had all the stores in town? Say they would decide not to deliver as the A. & P. groceries decline to do.

The easiest answer would be, you would dispense your own, but could the manufacturer exist on just such patronage? We have often wondered what Proctor and Gamble would do if the several big chain store groceries would get together and say, "We will give you so much for your soap and no more. Take it or leave it." Would the public insist? Probably for a while and then go on buying a substitute. A couple of big chain store systems could do the same with a big manufacturing chemist. We have heard rumblings of a distant drum to the effect that certain of the big manufacturing chemists heretofore dealing only with us have decided to invade the open field and will hereafter advertise directly to the public. Furthermore, that this may be done at once, so we might be on the look-out for it.

The next thing will be the instrument makers. As far as the hospital supplies are concerned they have been pretty well in the hands of a few concerns for some time. We think it was Roger Babson who argued that the chain store idea would be its own death, that the rivalry between the big concerns was so acute that the margin of profit was approaching the zero point. This leaves out the idea that these may all combine. However, even today the housewife misses the service her old groceryman gave her in telephones, delivery and credit.

"Early and provident fear is the mother of safety." If the medical profession has a strong, compact organization, which stands solidly back of its principles it need not fear chain stores nor combines of instrument or supply makers, and if the big manufacturing chemists depart too far from their recent ethics, it may be suicidal.

Compensation Insurance

It has been brought to our notice that the state of Massachusetts has what is known as a motor vehicle compensation insurance law, designed to take care of medical, surgical and hospital treatment of persons injured by an automobile and at the same time provide for maintenance of dependents. Every person applying for an automobile license is required to take this insurance policy of at least \$5,000 at a cost of about ten dollars per year. This is not a liability insurance but is immediately available for expenses of the injured, no matter who is at fault. We have not as yet secured a copy of the law, but hope to have it published in the next issue of the JOURNAL.

The committees on legislation and hospitals will have a like measure introduced in the next session of the legislature, and in the meantime see that your representative is thoroughly informed on the subject. C. A. R.

Puerperal Eclampsia

Puerperal eclampsia is on the increase. Why this is so we do not know. The pregnant woman is having greater care and closer observation from the time of conception to childbirth than ever before, yet this grave condition attended with much danger is occurring more frequently. While the percentage of death rate has not increased, it has not diminished.

Notwithstanding modern research and investigation, the pathology is still a mooted question, and the treatment by each individual is based on his idea of the pathology. The best we can do under the circumstances is to relieve the toxemias by remedies which in a large measure is purely empirical. In one case we will succeed and in others we meet with disappointment. The inducement of labor by one of various methods has given best results, but too often this is postponed for one reason or another until irreparable damage has been done the organs of elimination. For several years Cæsarean section has been the operation of choice by many obstetricians, but like in others a last resort which results in saving the child and losing the mother.

The induction of labor by whatever method

is a serious matter to both mother and child, and, when performed, should be done at the earliest possible moment after an improvement makes it justifiable. The time to treat puerperal eclampsia is before the eclampsia occurs. Fortunately, it does not, like cerebral hemorrhage, come as a bolt out of a clear sky, but with marks of warning perceptible to one with even a moderate degree of observation. There is nothing more pathetic than for a mother, whether young or old, to lose her life on the threshold of the hour which was to make the world brighter for her; nor is there a more embarrassing position in the practice of medicine for the physician when he has to acknowledge his failure under such circumstances. To enumerate the various methods of treatment would be a repetition of articles published in almost every medical journal. We wish only to call attention to the use of magnesium sulphate intravenously, which is practically new and not generally used.

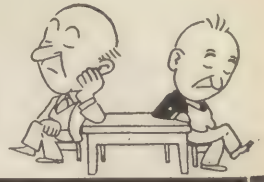
Fantis, in *General Therapeutics*, 1926, gives the detailed procedure as used and recommended by Drs. Vruwink and McNeile. In the preclamptic type of toxemia they inject intravenously 20 cc. of a 10% solution of magnesium sulphate, which practically always gives relief from subjective symptoms, and is usually followed by a reduction in blood pressure and edema and an increase in the output of urine.

During the convulsions 20 cc. of the solution will generally stop, or limit the number of convulsions. The authors do not hesitate to repeat the injection in one hour if indicated. One or two injections usually are sufficient, but as many as eight doses in twenty-four hours have been given. They report one hundred cases with nine deaths, and believe that pregnancy should at times be interrupted, but only when repeated injections of magnesium sulphate do not give protracted or permanent relief, and never during the active period of a convulsion. This treatment is so simple that it can be used by any general practitioner, and offers results much more favorable than any other heretofore used. It may not be a specific or panacea, but if used early and often our observation leads to the opinion of its efficacy in many cases.

C. A. R.



NEWS NOTES OF COMPONENT SOCIETIES



Central West Virginia

An interesting meeting of the Central West Virginia Medical Society was held at Webster Springs on the evening of July 18 with a large number of members in attendance. The scientific papers were presented by Dr. Robert King Buford, of Charleston, on "The Surgical Management of Goiter," and by Dr. Harry L. Robertson, of Charleston, on "The Medical Management of Goiter."

Following a short business session a banquet was served to the members and visitors present. Many of the doctors who attended the meeting traveled over 200 miles in order to be present. S. S. HALL, *Secretary*.

Lewis County

The Lewis County Medical Society held its regular monthly session on June 19, 1928, at the Memorial Library, Weston. Dr. George Snyder, vice-president, presided at the meeting in the absence of Dr. M. D. Cure, president. Dr. S. L. Cherry, of Clarksburg, presented the scientific paper of the evening on "Anemia Types and Treatment," which was very much appreciated by the members of the society.

In spite of the unanimous endorsement of the Lewis County Medical Society, the Lewis County full-time health unit was recently discontinued by order of the county court, which failed to provide funds for its maintenance during the coming year.

At the June 19 meeting, Dr. Waitman T. Smith, of Glenville, was elected a member of the Lewis County society.

O. L. HUDKINS, *Secretary*.

Joint Meeting Held

A joint meeting of the Monongalia County and Preston County Medical Societies was held at Veterans' Hall, Kingwood, at 8 o'clock on the evening of July 13, 1928. The scientific program was furnished by Dr. Harold C. Miller, of Egton, who read a paper on "The Prognosis of Measles Paraplegia," and by Dr. T. Jud McBee, of Morgantown, who gave a paper on "Backaches in Relation to Urology."

Following the scientific program, refreshments were served to the members present. A good attendance turned out for this joint program and there was considerable discussion of the two splendid scientific papers.

Ohio County

A special meeting of the Ohio County Medical Society was held on the evening of June 1, 1928, at the Elk's Club for the purpose of closing up all business affairs of the society until meetings are resumed next fall. Final reports of all committees were heard and the delegates to the state convention reported on the Fairmont meeting. A buffet lunch followed the session.

Following the hearing of reports, the election of officers for the coming fiscal year was held with the following result: Dr. A. L. Jones, president; Dr. J. G. Thoner, vice president; Dr. H. W. Bond, secretary, and Dr. Robert J. Armbricht, treasurer. The Board of Censors was elected as follows: Dr. E. S. Bippus, Dr. J. R. Caldwell and Dr. C. H. Clovis.

Under the retiring president, Dr. J. W. Gilmore, the Ohio County Medical Society had a most satisfactory and successful year.

—H. W. Bond, *Secretary*.

GENERAL NEWS

Medical Award

The highest award of the American Medical Association for achievement in scientific research, a gold medal, has been awarded to Surgeon Edward Francis, of the United States Public Health Service, for his "thorough and important scientific contributions to the knowledge of tularæmia," a disease transmitted to man through handling of rabbits, the Public Health Service was informed June 19 by the Association.

It was stated orally at the Public Health Service that Dr. Francis for ten years had been studying tularæmia. He isolated the germ and outlined means of preventing contraction of the disease. He ascertained in his studies, during which he contracted tularæmia, that rabbits become infected by ticks, but that the ticks seldom bite a man. The disease is transmitted to the human beings through handling rabbits when preparing them for market, but the germs become dormant once the rabbit is cooked.

At the same time the Committee on Awards informed the Public Health Service that Surgeon O. E. Denny, Medical Officer in charge of the Leperosarium, Carville, La., under the direction of the Public Health Service, had been awarded the third prize under awards for exhibits.—*U. S. Daily.*

Fairmont Registration

Aside from the Marion County Medical Society, which organization was host to the sixty-first annual meeting of the West Virginia State Medical Association at Fairmont in May, the Harrison County Medical Association had the largest number of registered members in attendance. There were 36 members of the Harrison group present at the Fairmont convention, or better than 50 percent of the total membership.

The Ohio and Monongalia County societies were tied for second honors with 30 members registered from each society. The Monon-

galia society, however, had the largest percentage of members present of any other county group. The Monongalia society has a total membership of 43 doctors and their percentage was better than 69 percent. Kanawha County had 28 members registered, Parkersburg Academy 18, and Cabell County 15 members in attendance.

With one exception, every county society in the state was represented at the Fairmont meeting by at least two members. There were 76 registered visitors in attendance and there was a total registration of 354. The Marion County Society had a registration of 52 members out of a total membership of 54 doctors.

Medical Advances

Last year twenty-two major advances were made in medical knowledge. These are described by Dr. George E. Coleman, of the University of California, in a recent bulletin by the American Association for Medical Progress. Professor Julius Wagner-Jauregg, of Vienna, was awarded the Nobel prize for successful treatment of paresis by inoculating with malaria. Dr. J. J. Abel, of Johns Hopkins, produced a crystalline form of insulin for treatment of diabetes. Dr. F. M. Allen discovered "myrtilin," a drug also used for diabetes treatment. Dr. K. E. Birkhang, of Rochester, developed a curative antitoxin for erysipelas.

Dietary discoveries include liver for the cure of pernicious anemia, the presence of vitamin C in milk, a special reduced diet for epileptic children, and the treatment of dried milk with ultra-violet light for preventing rickets in babies.

Other results include a serum for fighting African sleeping sickness, the knowledge of the chemical nature of tuberculin, and changes in animal tissue with the action of arsenic, which may have a bearing on cancer cure. Experiments are well under way on an improved antiseptic called "avertin."

Count Corti's Book

Count Egon Cæsar Corti, whose recent book, "The Rise of the House of Rothschild," tells the story of the most powerful family of financiers in history, is a descendant of Alphonso Corti, the discoverer of the Cortis-organ of the ear.

Count Corti records that the death in 1812 of Meyer Amschel Rothschild, the founder of the House of Rothschild, was hastened by blood-letting, then "the alpha and omega of medical practice . . . a procedure which simply served to weaken old people who were very ill, instead of giving them relief."

Charles Lee Summers, M.D.

Dr. Charles Lee Summers, internationally known pediatrician, died in Baltimore on July 15 following a major operation. He was 64 years of age at the time of his death. Dr. Summers was an organizer of babies' and children's clinics of the University Hospital at Baltimore. For a number of years he was on the staff of the children's hospital of the University of Vienna.

"Healer" Convicted

Declaring that while he was in touch with "unseen powers" that permitted him to effect cures of illnesses, he had no desire to effect such cures if contrary to law, W. C. Garrison, spiritual minister, recently pleaded guilty to a charge of practicing medicine without a license and was fined \$50 and costs and sentenced to six months in the Ohio County jail. The six months' sentence was suspended when Garrison returned \$108 to Mrs. Sam Mistovich, of Weirton, one of his "patients," and \$36 to another Weirton woman. The money represented the fees paid by the women to Garrison for his services.

The "healer" told Justice of the Peace J. W. Kindelberger, before whom he was tried, that he had powers beyond the knowledge of the ordinary physician. Asked by the court as to his plea to the charge against him, he exclaimed:

"I plead guilty!"

Dr. W. H. McLain, city-county health commissioner, on whose complaint Garrison was arrested, was asked by Assistant Prosecuting Attorney Fred H. Brinkman what sentence he thought should be imposed. Dr. McLain recommended the maximum penalty, which is \$50 and costs and six months' imprisonment.

Dr. McLain, however, recommended that the sentence be suspended as to the jail term, provided the "healer" reimburse Mrs. Mistovich and the other woman the sums they had paid as fees. Garrison at first asked to be freed for several days to collect the amount, but was ordered committed to jail. He had been behind the bars only a little more than one hour when the amounts of the fees were produced and the women reimbursed.

Garrison informed county officials he had been a spiritual leader for 20 years.—*Wheeling Register*.

Tri-State to Meet

Departing from the usual custom, the next meeting of the Central Tri-State Medical Society will be featured by four essayists on the program, according to an announcement just received from Dr. F. O. Marple, Huntington, secretary. The meeting will be held on the afternoon and evening of September 20, 1928, at the Hotel Pritchard, Huntington, and will get under way promptly at 2 o'clock. Dr. Marple stated that four essayists were placed upon the program instead of three in order to eliminate wasted time between the last speaker of the afternoon and the banquet hour.

The speakers who will appear upon the program for the September 20 meeting will be Dr. T. H. Weisenburg, professor of neurology and psychiatry of the University of Pittsburgh post-graduate school; Dr. Edward Speidel, professor of obstetrics of the University of Louisville; Dr. John H. Stokes, professor of dermatology of the University of Pittsburgh post-graduate school, and Dr. Verne Hunt of the surgical division of the Mayo Clinic. The subjects of the various scientific papers will be announced in the September issue of the JOURNAL.

Post-Graduate Assembly

The annual assembly of the Inter-State Post-Graduate Medical Association of North America will be held in the city of Atlanta, Georgia, October 15th to 19th, inclusive. All medical men in good standing are privileged to register, and all are cordially invited to attend.

Dr. George W. Crile, chairman of the program committee, has arranged an exceedingly attractive program. Eighty-two renowned clinicians and teachers from all sections of the United States and Canada, and from several European countries, have definitely accepted places on the program.

Workers in Dust Trades

The United States Public Health Service has completed a study of the health of workers in a Portland cement plant, the first of a series covering the dusty trades, according to an announcement recently made by Surgeon General H. S. Cumming. The study was undertaken to ascertain whether persons working in an atmosphere containing numerous minute particles of a calcium dust suffered any harmful effects. The investigation was conducted in one of the older, dustier plants, so that the effect of large quantities of the dust could be observed. Records of all absences from work were kept for three years, and the nature of disabling sickness was ascertained. Physical examinations were made, X-ray films taken, and the character and amounts of dust in the atmosphere of the plant were determined.

The results of this investigation indicated that the calcium dusts generated in the process of manufacturing Portland cement do not predispose workers to tuberculosis nor to pneumonia. The workers exposed to dust experienced, however, an abnormal number of attacks of diseases of the upper respiratory tract, especially colds, acute bronchitis, diseases of the pharynx and tonsils, and also influenza or grippe. Attacks of these diseases serious enough to cause absence for two consecutive working days or longer occurred among the men in the dustier departments at a rate which was about 60 per cent above that

of the men in the comparatively non-dusty departments. Limestone dust appeared to be slightly more deleterious in this respect than cement dust.

Outdoor work in all kinds of weather such as was experienced by the quarry workers appeared to predispose to diseases of the upper respiratory tract even more than did exposure to the calcium dusts. In the outdoor departments of the plant, also, the highest attack rates of rheumatism were found. The study also indicated that work in a cement dusty atmosphere may predispose to certain skin diseases, such as boils, to conjunctivitis, and to deafness when cement dust in combination with ear wax forms plugs in the external ear. When the dust in the atmosphere is less than about ten million particles per cubic foot of air, it is doubtful that the above-mentioned diseases and conditions would be found at greater than average frequency.

Modernization of plants and installation of ventilating systems are helping solve the dust problem of the industry.

Witch Doctors

Terrifying methods used by African witch doctors and medicine men are revealed in the current *Hygeia* by Dr. J. B. McCord, an English physician who spent twenty-eight years practicing among the Zulus of Africa.

The medicine man cures a chronic headache by making an incision through the scalp and scraping the bone. In many painful conditions an incision is made and medicine is rubbed in so that the medicine may go direct to the seat of the disease. Occasionally the native surgeon undertakes major operations, with uniformly disastrous results, Dr. McCord declares.

Both doctor and patient believe that in most cases sickness is the result of being bewitched. The Zulu gives nature no credit for healing power. He must be cured by some more potent charm than the one that felled him. The witch doctor uses many emetics, purgatives and counterirritants. He believes that disease is something that has entered the patient and that this is the way to get rid of it.

Dr. McCord tells of one case in which a doctor had a pot of boiling medicine. With a brush he applied this to a girl's chest and back. It was weeks before she recovered from the burns. In another instance a boy had brain fever. The ear offered a direct path to the interior of his head. The doctor filled his ears with some concoction. The boy recovered but his hearing was destroyed.

There is a widespread impression that childbirth among savage races involves little discomfort and no danger. Dr. McCord's experience refutes this. The women suffer horribly and the practices of native midwives are frightful, he declares. A common practice is to beat the woman with stout sticks if she cries out overmuch. It is hard to estimate the number of women who die or become invalids annually as a result of childbirth, he says.

Lead Poisoning

The results of a new test for industrial lead poisoning, which shows the effects of lead absorption at an early stage, were made public in a statement on June 7 issued by the Bureau of Labor Statistics of the Department of Labor.

The new test reveals, according to the Bureau, the presence of immature red cells in the blood stream which, for persons exposed to the lead hazard, may be taken as a certain index of lead poisoning or lead absorption. Heretofore, it is pointed out, the diagnosis of lead poisoning has depended upon the presence of definite symptoms, with the result that poisoning from lead and its compounds was generally well established before it was detected.

The results of the clinical and laboratory studies, with an account of the technique followed in making the blood counts, are given in Bulletin No. 460 by Carey P. McCord, M.D., of the Industrial Health Conservancy Laboratories, Cincinnati, Ohio, and published by the Bureau of Labor Statistics.

The Average Income

How have the transformations of medical practice affected the average doctor's income?

The earnings of the successful surgeon or the distinguished consultant hardly concern us. What of the median man? With the possible exception of university teaching, medicine demands today a longer and more expensive training and apprenticeship, and progress during the early years of practice is slower, than in other professions. Over 60 per cent of the graduates of medical schools during 1925 and 1926 had an earlier bachelor's degree and most of the remainder had had at least two years of college. On this had followed four years of medical school and at least one year as interne in a hospital before remunerative practice could even begin. Dr. W. W. Keen, writing in the January *Atlantic Monthly*, says: "I have obtained from a number of internes in hospitals a statement of their actual expenses for their professional education as outlined above, and the average is practically \$10,000." Except for men who start in fortunate positions, there is much unused time and small income during the initial years.

In 1922, the New York State Tax Commission published a report of the 1920 income tax returns according to occupation, showing of 13,910 returns from physicians "working for themselves":

5,632 or 41%	reported taxable incomes not over.....	\$ 3,000
4,644 or 33%	reported taxable incomes of \$3,000 to.....	5,000
2,644 or 19%	reported taxable incomes of \$5,000 to.....	10,000
736 or 05%	reported taxable incomes of \$10,000 to.....	20,000
254 or 02%	reported taxable incomes of over.....	20,000
13,910	100%	

The interpretation of these figures is not clear. It would have been especially desirable to bring out the distinction between net and gross income. The run of the figures suggests that while the very high incomes secured by a few men undoubtedly lure every young medical optimist, three-quarters of physicians earn \$5,000 or less. It is doubtful if the average gross income of the practicing physician in a city is more than \$5,000 a year and in small communities it is certainly less. Testimony from many sources indicates that the

expense of maintaining the doctor's office, his growing kit of tools and the service required to maintain them, his automobile, and so on, take from 30 to 50 per cent of his gross income. An estimate of one-third of gross income devoted to professional expenses, leaving only two-thirds for the doctor and his family, is not excessive. Moreover, when the doctor in private practice is ill or takes a vacation, his income stops. The financial result is often distressing, particularly to younger doctors, and is enhanced by the perennial problem of collecting bills. Every good doctor earns all he gets, but he doesn't get all he earns.

In former times these difficulties were partly met when the young physician attached himself as assistant to an established practitioner. They are partly met today by the development of salaried positions in hospitals and clinics and by work under public health services, voluntary health agencies, insurance companies and the growing field of industrial medicine. A considerable sample of the 1920 graduates of medical schools showed that 17.8 per cent had taken full-time and 20.7 per cent part-time positions. The percentage among recent graduates of all medical schools in the United States is probably lower than among this sample. Public work has greatly reduced such diseases as typhoid fever, malaria, and the summer diarrheas of children, and has transferred much treatment of tuberculosis, syphilis, and gonorrhea from individual private practice to hospitals and clinics. There have been compensating factors, it is true, returning to the medical profession income that has been taken away—such as salaried posts in health work and the education of the public to seek the doctor for illnesses that are neither grave nor emergent. But we do not know how nearly the gains have balanced the losses and it is highly probable that the doctors who have benefited most from the gains are not the ones who have suffered most from the losses.—*Michael M. Davis in The Survey.*

Conserving the Sight

A report of the Joint Committee on Health Problems in Education of the National Education Association and the American Medical Association, published by the National Society for the Prevention of Blindness; second edition; revised; sixty pages; illustrated. Available at cost, National Education Association, 1201 Sixteenth Street N. W., Washington, D. C., American Medical Association, 535 North Dearborn Street, Chicago, Ill., or National Society for the Prevention of Blindness, 370 Seventh Avenue, New York, N. Y. Price 35 cents net.

This report, prepared under the editorship of Dr. Thomas D. Wood, chairman of the Joint Committee, has the purpose of supplying teachers, school officials, and others concerned with vision problems as related to education, with information, advice and practical directions which will promote the conservation of vision of school children. The present edition includes an illustration of the Symbol E chart and a letter chart, both drawn scientifically to Snellen scale, for use from a twenty-foot distance. All directions for the use of these charts in testing the vision are in line with the most modern approved practice of those now adequately safeguarding the eye health of school children.

The new pages and illustrations, discussing the technique of using the symbol chart with little children, by adapting it to a game of play, are most convincing evidence of its practical utility for use with young children as well as for older groups. The new chapter on "Lighting the Schoolroom" is sound in teaching and easily understood by nurses and teachers. This booklet might well be in the hands of all nurses and teachers concerned with testing the vision of school children or with promoting eye hygiene.

Group Life Insurance

Approximately three hundred members of the West Virginia State Medical Association have already signified their intention of taking out and carrying the \$3,000 group life insurance policy to be issued by the American National Insurance Company of Galveston, Texas. Form letters explaining the policy and plan in detail were sent to the association members more than one month ago, and it is assumed that most of the members interested

in the group policy have already sent in the information card.

The average age of the doctors who have already replied to the form letter is 49 years, and it is understood that the rating will be less than \$13 per year for each thousand dollars' insurance carried. However, steps are now being taken to send out a second letter to all of the association members who did not reply to the first. Representatives of the insurance company have informed the insurance committee of the association that if additional members are secured the rating will be considerably lower than it is at the present time. Dr. J. Ross Hunter, of Charleston, chairman of the committee, hopes that at least five hundred members of the association will take advantage of the group insurance.

Hospital Planned

Plans are already being formulated for the erection of a 50-bed hospital for crippled children at Charleston by the members of the Beni-Kedem Temple, according to a recent announcement made in the capital city. The Shriners, it is understood, are planning to erect the institution and then turn it over to the Imperial Council for maintenance. It has been stated that the building and equipment will cost in the neighborhood of \$350,000.

Medicines Barred

Twenty medical preparations have been denied mail transportation to Mexico, the second assistant postmaster general, W. Irving Glover, has just announced. The full text of the announcement follows:

The following should be added to the lists of articles prohibited in the regular and parcel post mails to Mexico shown on pages 338 to 341 of the annual Postal Guide for 1927:

Lechelle Water; R. Schiffman's Asthmador; Dr. Richards' Bacalao; "Any" Medicinal Cream (Boretz and Fr. Hauth); Stillman's Bella Aurora Cream; "Saiz de Carlos" Stomach Elixir; Dr. Nelson's Chocolate Emulsion;

Dr. Grant's Grantillas; McCoy's Compound Cod Liver Tablets; Dr. Ichoa's Anti-Malarial Tablets; Dr. Ayer's Cathartic Pills; Dr. Debouzy's Pills; Velcas Restorative Tablets; Pinkham's Blood Purifier; Behring's Polyvalent Antimeningococcic Serum, Control No. 52 and Control No. 58; Birbeck and Robinson's Ho-Ro-Co Tonic; Boxberger's "Kissing" Tablets for Reducing; Dr. Calbetos' Thiocolina; Dr. Miles' Tonic; A. Zurdo's Vegetal Andino.

Lay Health Work

The failure of the \$500,000 "health demonstration" inaugurated five years ago in Cattaraugus county, New York, by the Milbank Memorial fund, and which has attracted almost nation-wide attention, appears to have been due almost entirely to its lack of cooperation with the medical profession, according to the report presented to the house of delegates of the Medical Society of the State of New York by the Cattaraugus County Medical Society. A part of the report, which followed an investigation by the Cattaraugus society, follows:

We showed in our presentation to the state society's conferences that the demonstration was to a considerable extent conducted during its early stages by practitioners unlicensed in the state of New York, thus breaking the laws of the state.

We showed that nurses of the demonstration had practiced medicine in violation of the laws of New York State.

We showed that employees of the demonstration had made disparaging remarks regarding the medical profession, and regarding the competency of physicians in Cattaraugus county.

We showed that the demonstration deliberately created and organized public sentiment for its own continuance in office, by making use of every lay organization it could find, including the Jolly Eight Card Club and an unimportant nursing organization in a remote township, in order to persuade the county government to continue the demonstration. At the same time, it did not use the

same diligent methods to ascertain medical professional opinion, nor has any such effort been formally made since early in 1926.

There has been continued in authority administrative heads that were offensive in words and acts to the only body which could have been of real value to the demonstration in its allegedly altruistic health campaign.

In spite of the above situation, the physicians of Cattaraugus county agreed to forget and forgive the past if the demonstration would change its tactics. They promised to assume constructive leadership in all public health activities and to recognize their responsibility as the only authoritative source of medical information regarding the preservation of health. They agreed to have confidence in the demonstration and to cooperate with it. These advances, made at the suggestion of the state society, have been ignored and refused by the demonstration during the past few weeks.

In agreement with the officers of the state society, the county physicians offered a sound method of deciding at the end of 1928 regarding the continuance of the demonstration, agreeing to accept the verdict of the highest officers of the Council of the Medical Society of the State of New York in conference with the officers of the county medical society. This arrangement, in part endorsed in conference by Homer Folks and other representatives of the demonstration, has since been rejected by them.

Finally, the county society agreed to a statement of Eight Fundamental Principles, which were approved in conference by representatives of the Milbank Foundation, the State Charities Aid Association, the State Medical Society, and others. But when these principles were submitted to the local representatives of the demonstration and the director of its activities, he declined to endorse them or recommend their adoption by his board. Every agreement made with one branch of this curious organization is subject to refusal by another. Each official has apparently many different individualities and positions, and is ready always to plead his *alter ego*.

We know full well that lay groups can continue to operate this demonstration and others like it, if they wish, employing administrative heads who will follow completely the desires of the men who hold the purse-strings. But we also know that the medical profession of the state and nation, having placed its hand to the plough, will not turn back. It will organize itself for administration of this kind of work, and in time will strikingly succeed. Every doctor's office should be, and eventually will become, a health center.

The situation in Cattaraugus county has attracted such widespread attention that the highest officials of the Milbank Foundation were constrained a few days ago to spend several days in Chicago for the purpose of defending their position to the American Medical Association, which heretofore has not entered the controversy, but which must now give it some attention unless the situation is remedied. These high officials devoted a considerable portion of their platform time in Chicago to violent attacks on the medical profession, alike in Cattaraugus county and throughout the country.

Iosaline Not Acceptable

Iosaline, according to information supplied by the Iosaline Co., Inc., Washington, D. C., is a mixture containing potassium iodide, equivalent to 5 per cent of iodine; menthol, 1 per cent; menthyl salicylate, 12 per cent; alcohol, 70 per cent. According to the label, Iosaline is a "non-staining gelatinoid of combined iodine with menthol and methyl-salicylate." The label also declares the presence of 70 per cent of alcohol and 5 per cent of iodine, but the form in which the iodine is present is not divulged, nor the amount of menthol and methyl salicylate. A similarly indefinite statement appears in the advertising: the amount of menthol and methyl salicylate is not declared nor the amount or the form of iodine.

Although it is well known that potassium iodide is not absorbed to any extent when applied to the skin, the advertising claims that the iodine of Iosaline is readily absorbed; thus it is stated that the "prompt

absorbability" of Iosaline is one of the "unique advantages" of the mixture and it is suggested that the mixture may be prescribed "wherever iodine and the salicylates, alone or in combination, would be used locally."

In 1913 (The Journal, March 15, 1913, p. 849), Iosaline was found unacceptable for New and Nonofficial Remedies because of the misleading and unwarranted claims that were made for it. At that time the A. M. A. Chemical Laboratory reported that Iosaline appeared to be a solidified watery alcoholic solution of soap, containing potassium iodide, menthol and methyl salicylate, and that physiologic tests carried out by rubbing the preparation on the skin and afterward testing the saliva and the urine for iodide indicated that none of the potassium iodide is absorbed.

On the basis of the available information, the Council affirmed the rejection of "Iosaline," holding the preparation unacceptable for New and Nonofficial Remedies because the quantitative composition is not declared on the label and in the advertising; because its name is not descriptive of its composition, and because it is sold with unwarranted therapeutic claims.—*Journal A. M. A.*

Dr. Paden Appointed

Dr. R. H. Paden, of Parkersburg, has been appointed Director of the division of child hygiene of the State Health Department, it was announced today by Dr. W. T. Henshaw, state health commissioner. Dr. Paden, who is a prominent pediatrician, has been connected with the health work in Parkersburg for the last several years, as medical examiner of the city schools. He is well qualified for his new position and comes to the health department with the highest endorsements. Dr. Paden will assume the duties of his new office July first.



—Dr. H. R. Glass and family, of Charleston, have recently returned from a motor trip through Virginia.

—Dr. and Mrs. Robert King Buford and daughter have just returned to their home in Charleston from a visit in Alabama.

—Dr. W. A. MacMillan and family, of Charleston, are spending the summer with Dr. MacMillan's parents in Canada.

—Dr. L. E. Shrewsbury, formerly of Bluefield, is now located in Beckley. Dr. Shrewsbury recently spent some time in New Orleans, La.

—Dr. R. H. Walker, of Charleston, recently attended the meeting of the Baltimore and Ohio surgeons at St. Louis.

—Dr. William C. Camp, of Spencer, has been appointed health officer of Roane county.

—Dr. Frank LeMoyné Hupp, of Wheeling, is spending the summer at Lake George, N. Y.

—Dr. Henri P. Linsz, of Wheeling, and Dr. James R. Bloss, of Huntington, have just returned from the American Medical Association meeting at Minneapolis.

—Dr. H. G. Steele, of Bluefield, who has been confined to a hospital in Philadelphia for several weeks, has returned to his home and expects to resume practice in the near future.

—Dr. John W. Moore, of Charleston, made an interesting address last month before the Madison Rotary Club.

—Dr. Albert H. Hoge, of Bluefield, addressed the Princeton Rotary Club on the first of June.

—Dr. Ross Daniels, of Pemberton, Raleigh county, has returned home after spending some time visiting in Wheeling.

Medical Malpractice Suits*

By CZAR JOHNSON, M.D., F.A.C.S.

Lincoln, Nebraska

THE second or third physician who attends a patient is too frequently the starting point of a malpractice suit.

One doctor finds a case progressing unfavorably and he calls in a consultant to aid him; recovery is not satisfactory, the patient becomes dissatisfied or complains and requests that another doctor be called to the aid of the physician. These doctors are contemporary consultants.

A patient is dismissed from treatment, chooses to discontinue treatment or is referred to some other physician, or another physician is consulted with or without the consent or knowledge of the first physician. This physician is a subsequent consultant. A contemporary consultant might call the patient aside and explain what, in his opinion, the first physician in charge ought to have done and failed to do, but that does not often happen. The contemporary consultant as well as the physician first in charge are subject to action jointly.

Joint Liability

Physicians seem to be ignorant of joint liability. A prominent eye specialist was called into the ward to see a patient who had been operated upon for the removal of the Gasserian ganglion. He gave some advice to the surgeon and, two years later, was required to defend himself in a joint action against the surgeon and himself.

A surgeon was called into the operating room to assist another physician. He did not attend the patient afterwards, but three years later was a defendant in a malpractice suit brought by this patient.

A physician went to a neighboring city to attend a patient as a consultant to the family physician. He neglected to ascertain whether the family physician was competent to carry out his directions and two years later paid his proportion of a \$3,000 judgment.

The consultant can be summoned and compelled to testify to what he saw or what he observed, and if so summoned he should tell the truth. He is under no obligation to form or express opinions.

In what particular does the position of the subsequent consultant differ from that of the contemporary consultant? The subsequent consultant being called in, it is his professional duty to render the patient the most skillful services of which he is capable; so also the contemporary consultant. Manifestly the consultant's duty to the patient is identical, whether he is consulted contemporaneously or subsequently.

The medical profession appears to assume that the relationship of the subsequent consultant to the doctor previously in charge of the case is different. It is time that some one should ask why. His opinion about what might have been, if what was had been otherwise, or what might now be if what is were not, need never be formulated nor expressed. The suit can not be sustained without *opinion* testimony and so it is not brought.

No suit can start without medical opinion. I have endeavored to make plain that the success or failure of a suit for malpractice depends almost entirely upon opinion testimony which, if given at all, is given voluntarily. The volunteering of medical opinion in order to incite or sustain a malpractice suit against a physician is prejudicial and never justifiable. This should be so defined in our code of ethics, and only in our code of ethics should the subject be dealt with. I want to make this emphatic because about every so often some misguided medical society proceeds to adopt rules, regulations or resolutions on this subject that produce disaster when read into the record of a malpractice suit.

Physicians should be able to realize the undermining effect that repeated suits alleging negligence have on any organization. It has seemed to me that we are slow to recognize many of the excellent organization principles of industry. A number of years ago the general counsel for a very large corporation adopted the policy of avoiding law

* From the Bureau of Legal Medicine and Legislation of the American Medical Association.

suits even to the extent of professional and financial sacrifice at times. Today this man's company, in his territory, has not only universal goodwill, but less suits are filed against his company in his division than in any other.

The effect of repeated law suits applies with particular force to the medical profession whose usefulness depends materially upon the confidence of the public. I appreciate that malpractice suits can not be entirely eliminated, but they can be reduced to an irreducible minimum, and those that then occur must be endured. Typhoid fever occasionally occurs, but that is not an argument against measures for prevention. Yellow fever once blocked a short passage way between the Atlantic and Pacific, but yellow fever was eliminated, these oceans became united and our national defense strengthened. There are few disease that are curable. Preventive medicine has the confidence of the public and is the foundation of modern medicine. Sacrifice, knowledge, and moral courage were required to produce it. The prevention of malpractice will require the same qualities.

The first requisite is knowledge of medicine, knowledge of liability, and moral courage.

Medical knowledge is available to every physician who seeks it. There is little professional and no legal excuse for lack of knowledge.

The rule is that the treatment accorded must be that which is customarily prescribed by physicians doing a like class of work. Therefore, surgical treatment must be of a grade approaching the topmost in the community. The same holds true of the other usual divisions of medicine. Conceit or selfishness are not legal defenses. If disaster could have been prevented by assistance, and qualified assistance was available, a reasonably prudent physician would have sought it and failure to have done so is negligence. Any number of situations might be related wherein this aspect of the question arises.

Knowledge of liability is less available. State Medical Defense Committees should be busy furnishing the fundamentals as rapidly as their time and money will permit.

Moral courage is more difficult to disseminate. Egotism and selfishness are the offspring of ignorance. Ignorance is forgivable but not excusable. The aiding and abetting of ignorance or negligence is neither forgivable nor excusable. It will require moral courage to eliminate these vices and their disastrous effect upon medicine, but until it is done individual and joint liability will continue to be asserted in causes of action.

Physicians should more fully realize not only their moral and professional obligations but also their legal liabilities. Surgeons frequently operate in a country town, collect their fees and leave without written orders for the after-care of the patient. It is negligence to delegate to a referring physician of unknown ability unusual medical procedures, and should untoward results occur because of this carelessness a joint action may follow.

It will require considerable moral courage for the advanced physician to refrain from aiding and abetting a physician who is in legal difficulties because of his incompetency, yet sooner or later this will have to come about. The whole is greater than the part. The loss of respect of the courts and professional bankruptcy are at the end of our present medical defense policy.

The maintenance of strictly professional relations with patients and their relatives and the observance of privileged communications are imperative. Time was when a physician looked upon the information gained from a patient as sacred. The present-day custom of discussing cases at medical societies, the clubs, cafes, and lodges, often describing the patients so closely that the name might just as well be included, has developed a laxity of respect for privileges. A privileged communication, except under very rare conditions, has always been held inviolate by the courts and is too precious to be thrown away.

Office and hospital records which often contain the strictest sort of confidential data are passed from one assistant to another, or to young untrained nurses, and should some patient's reputation suffer because of idle remarks or information published by gossip the doctor may pay dearly for his negligence.

Newspaper reports of sickness and accidental injuries frequently contain confidential and privileged information. Some of these published accounts would make excellent trial evidence, should some misguided physician be called upon to reimburse a patient for financial injury sustained from information volunteered by him.

Insurance companies frequently write to physicians for confidential information concerning a former patient. What right has the physician to divulge this information? Suppose that, because of the violation of the trust imposed in the doctor, the former patient or patient's family are financially damaged. Do you not think the physician would be liable?

Accident insurance companies invariably ask physicians for privileged information and written medical opinions regarding claimants, for which they sometimes pay 50 cents to \$1.00. There are physicians gullible enough to assume a liability for this sum and also to violate their moral and professional obligations.

The third requisite is abstinence—abstinence from voluntary statements of facts to patients, their relatives or legal representatives when such statements may directly or indirectly reflect upon the professional or personal integrity of another physician.

The expression of a personal opinion of another physician, if unfavorable, may result in intensifying the prejudice of the patient against the other doctor, cause distrust and disrespect for the critic, or start a suit for damages, and in any event the profession as a whole suffers.

The expression of an unfavorable professional opinion of another physician or his treatment is a voluntary invitation to trouble. Aside from the financial and professional damages that may occur, it may be very embarrassing to have the remarks written into a court record.

Frequently lawyers resort to social visits to secure information sufficient to draw up a petition. Often they use depositions to get a case before the jury. It is strange that

highly ethical and educated physicians fail to appreciate this or recognize that a medical opinion, given socially or in the form of a deposition, may be just as damaging to the defendant as testimony voluntarily given in court.

Physicians must learn to abstain from expressing opinions that are detrimental to any physician or the medical profession, in court or out of court, regarding the condition or any events that may have occurred in a condition of a patient that has been examined for treatment or for the purpose of forming a hypothetical question or answer.

The medical profession should set itself to the task that has long been neglected. The issue is clear. Some form of treatment must be chosen for malpractice suits. Is it to be an expectant one, with sedatives and post-mortem deodorants, which requires little effort? Or is it to be modern preventive and applied therapeutics, which requires collective action, discipline, and moral courage?

Thyroid Therapy

Anne Topper and Philip Cohen (Am. J. Dis. Child. 35:205, Feb., 1928) report the studies of the effect of thyroid therapy on normal children and on a small series of children showing hyperthyroidism. The authors began to use thyroid therapy in cases of nephrosis in children. Using basal metabolism determinations as a criterion of the effect of thyroid administration, they found that no change occurred unless an infection supervened. They then extended their studies to other children. Each child was kept in bed during the study and the diet remained unchanged. The basal metabolism was then determined on several occasions until a normal reading was obtained for each patient. Thyroid extract, one-quarter grain (0.16 gm.) three times daily, was given. The dosage was then gradually increased to 1, 2, 3 and 5 grains (0.06, 0.13, 0.19 and 0.32 gm.) three times daily, and the basal metabolic rate was determined after each change in dosage. In four children with subnormal thyroid activity, thyroid in small doses promptly brought the basal metabolic rate

to a normal level. In nine children with a normal basal metabolic rate as much as 15 grains (0.07 gm.) of thyroid extract daily did not increase the basal metabolism. Four of these children, however, in whom careful measurements were taken, showed a remarkable increase in growth in this period. Since thyroid extract in relatively large amounts does not seem to have any effect on the basal metabolism of normal children, the authors question whether this test is a reliable criterion of the effect of thyroid therapy in childhood. The authors suggest that the growth of the child and other physiologic and metabolic responses are of greater value. On the basis of their work the authors put forth the following theory to explain the difference between thyroid action in the normal adult and in the normal child: thyroid is a metabolic catalyst and increases the phase of metabolism which is dominant in the individual—anabolic, or growth processes, in the child, and catabolic, or oxidative processes, in the adult. This theory is in line with Kendall's opinion that thyroxin speeds metabolism in the direction in which it is going.—*Arch. Neurol. & Psychiat.* (Vonderahe, Cincinnati.)

Law Enforcement

According to the March 17 issue of the *Pittsburgh Medical Bulletin*, there are at the present time approximately 700 chiropractors who are illegally practicing medicine in the state of Pennsylvania. After eighteen months' schooling, according to the bulletin, they are setting themselves up as full-fledged doctors and advertising for patronage.

"These chiropractors," the report goes on, "have deliberately refused to comply with the requirements of the law in properly preparing themselves to be safely licensed, and now are attempting to secure protection by having a law passed that will deliver them from the penalties of the present act, and grant them the full rights now accorded to physicians who are required by the state to go to school seven years after graduation from high school. By full rights is meant legal approval

of their desire to treat acute and contagious diseases, to sign death certificates, and to be permitted to treat their patients in hospitals that receive financial aid from the state."

Summarizing the situation, the bulletin points out that "The presence of so many unlicensed practitioners in Pennsylvania is not evidence of something wrong in our medical practice art, but is evidence of failure to enforce the law and of a state of public mind that tolerates the presence of groups of persons who are in rebellion against the sovereignty of the state."

While the Pennsylvania problem of unlicensed practitioners is far greater than the problem of this state, the difficulties arise from a common origin. That origin is the enforcement of the medical practice act. The committee on legislation of the West Virginia State Medical Association believes that if a bill can be put through the next session of the state legislature calling for the employment of a full-time medical practice act enforcement officer, it will have found a solution for the problem that is now annoying so many state medical societies.

In almost every state where this problem of unlicensed practitioners is in existence, the fault is not in the medical practice act itself but in the enforcement of the medical practice act. In West Virginia we have many officers whose sole duty is to enforce certain specific laws. Why not one officer to enforce our own medical practice act?

Propaganda for Reform

AL-14—The widely advertised "patent medicine," "Formula AL-14," is marketed by the American Chemical Company of Pittsburgh, which was previously known as the Research Laboratories of Pittsburgh. The American Chemical Company has exploited three products: "RA-3," "RA-9," and "AL-14." The first was for mental exhaustion and aphrodisiac effects were ascribed to it. The second was said to be similar to RA-3 except that it was for women. AL-14 is claimed to be "an insurance against colds, flu and pneumonia." The A. M. A. Chemical Laboratory reports that a package of the preparation

contained 24 small oiled paper envelopes. Twelve carried directions printed in red and the other twelve carried directions printed in blue; one of the envelopes contained citric acid and the other one a mixture of bicarbonates which, when added to water, effervesce, yielding a solution having as its essential constituents citrates of potassium and sodium together with a trace of calcium salt and a small amount of unneutralized citric acid.—*Jour. A. M. A.*, April 28, 1928.

ORLANDO EDGAR MILLER.—Recently a Canadian paper reported that the question of deporting "Dr." Orlando Edgar Miller was being considered by the Canadian authorities. For the past few years Miller's line has been "applied psychology" and motion-picture company promoting. In the early nineties, Miller was running a "rupture cure" concern. Subsequently he is reported to have exploited a "medicated sand treatment" as a "sure cure for dyspepsia." Then he organized the St. Luke's Society to exploit a "cure" for drug addiction. His next venture was a combination "university" and "sanitarium." Then he founded the "International Institute for the Treatment of Tuberculosis" and later transferred his activities to Europe. In 1920, Miller was back in America as the "Affirmative Apostle of Intense Individuality." He went to California in 1921 and organized a motion-picture concern known as the "Rellimeo Film Syndicate." In 1925 he was reported under investigation by the grand jury of Boston as a promoter of the "Temple of Psychology." Buffalo papers then reported his arrest on the charge of grand larceny. In January, 1927, two warrants were issued against Miller, one charging embezzlement and the other charging violation of the state corporate securities law of California.—*Jour. A. M. A.*, April 14, 1928.

ASTHMA-SERA.—This is another iodide-containing asthma and hayfever nostrum. The statement "Asthma-Sera Ends Asthma and Hay Fever Forever" appears on the stationery sent out by the R. M. B. Laboratories, Seattle, Washington. It does not appear on the trade packages, which are subject to the control of the federal authorities which enforce the federal Food and Drug Acts. Four bottles of Asthma-Sera "is considered

a full treatment"; price \$10.50. However, the purchaser of four bottles is told that, if any symptoms of asthma remain when the first half of the fourth bottle is finished, he "should order two more bottles of Asthma-Sera *immediately*." The A. M. A. Chemical Laboratory analyzed Asthma-Sera and reports that it is essentially a solution containing 8.8 per cent strontium iodide, 0.43 per cent sodium iodide, and an emodin-bearing (laxative) drug. That iodides will be effective in certain forms of asthma is well known to every physician. Strontium iodide has no advantage over sodium or potassium iodide.—*Jour. A. M. A.*, February 11, 1928.

Medical Publicity

For the benefit of publicity agents of state and county societies, the following advice on the subject is abstracted from a report of talks by newspaper men of Boston before a meeting of the Council of Social Agencies, reported in *Better Times*: "The papers want what will be read. The topic is relatively unimportant. Tons of copy are discarded every week. Whatever goes in, gets there after a contest. Don't write on tissue. Don't single-space. Manifolded copy is self-evidently not exclusive. Put the news story in the first paragraph, or lead, and be brief. Short, interesting news items have a real chance. Long copy, if used at all, is pretty sure to be cut. The papers are some 95 per cent emotional and about 5 per cent intellectual. They are interested in persons rather than things. And they are interested in persons only when they are doing something unusual, or where they are so different from others as to constitute news. Pictures help."—*Atlantic Medical Journal*.

Contract Practice

The following proposed draft on contract practice was prepared by the board of trustees of the Richmond Academy of Medicine, Richmond, Va., to be presented at its next meeting in September. The draft appears as published in the *Virginia Medical Monthly* and may be of interest to some of the members of the West Virginia State Medical Association.

"The traditional attitude of the medical profession is opposed to contract practice except when some substantial advantage to the people served by the contract arises out of it, and when this advantage is not one of reduced fees for people able to pay standard fees.

"The advantages usually to be recognized as legitimate are:

"(a) Prevention of disease or accident.

"(b) Increased efficiency in treatment through the more ready availability of the practitioner, or his special knowledge of disease or accident likely to arise, or his familiarity with facilities provided for treatment.

"(c) Protection of a party or corporation from liability to unjust claims or suits.

"A practitioner who accepts a contract should be prepared to show that it accords with accepted standards of ethics, and further that legitimate advantages of the contract are not used to cloak unethical extensions of its provisions.

"Except in isolated communities where it is necessary to make unusual arrangements, the family unit is not a proper object of contract.

"A contract should not provide compensation below the prevailing standard of fees.

"The group or party with which a practitioner enters into a contract should have some social or economic purpose resulting in a unity of living or working condition and the object of the organization should be obviously above a suspicion that medical services at reduced rates is any part of that object or purpose.

"A contract tends to be relieved of suspicion of unworthy purposes in proportion as the services rendered are limited to promises where employees work, and the hospital or infirmary quarters routinely maintained to meet the needs covered by the contract.

"While the principles outlined have neither the sharply defined character nor the force of a by-law, this lack is not considered material in maintaining the highest standard of ethical practice. Whatever wording is adopted in the matter of contract practice, no disciplinary action may be had against a fellow practitioner without a hearing of evi-

dence. The by-laws of the Academy clearly provide for procedure against a fellow deemed guilty of unethical conduct, of which an unethical contract or unethical conduct under guise of a reasonable contract may be an instance. The responsibility rests equally upon every fellow of the Academy to bring charges of unethical conduct when it is believed that the traditional and accepted standards of the profession are being violated."

Mental Disease

When there has been a considerable amount of mental disease in several generations of a family, the probability of the continuation in future generations of a mental disorder is fairly great. When, however, a few sporadic cases of mental disease occur in a family, there is little reason to be fearful of the results of the continuation of such a family strain. These are the conclusions reached in an article on causes of mental disease by Dr. H. C. Solomon in the August issue of *Hygeia*.

Study of the ancestry of a group of patients with severe mental disease will show that some mental disorder or peculiarity appeared in about 60 or 70 per cent of the descendants and collaterals of the previous generation. This would seem to indicate a hereditary connection. However, if one searches the ancestry of a random group of ordinary mentally well persons, one will find mental disorders in almost the same percentage, Dr. Solomon stated.

Compensation Denied

Pneumonia held not compensable under workmen's compensation act.—(Minnesota Supreme Court: *Costly v. City of Eveleth*, 218 N. W. 126; decided February 17, 1928.) A member of a city fire department, as a result of exposure, chill, and some inhalation of smoke suffered while in the performance of his duties, contracted bronchial and lobar pneumonia, from which he died. His widow was denied compensation under the workmen's compensation act by the state industrial commission, and appealed to the supreme court. Under the Minnesota compensation law mere sickness, with the exception of certain expressly enumerated occupational diseases,

was not compensable unless the disease was "an accidental personal injury within the meaning" of the law. The law defined an accident as "an unexpected or unforeseen event, happening suddenly and violently, with or without human fault, and producing at the time injury to the physical structure of the body." The supreme court decided that there had been no accident within the statutory definition, and affirmed the industrial commission's order.

Graduate Courses Held

Graduate courses for physicians and nurses were held in a number of states during the past year as a part of the work carried on by the states cooperating under the Maternity and Infancy Act with the Children's Bureau of the Department of Labor, according to a statement made public on July 25 by the bureau. The statement in full text follows:

In Kentucky, for example, classes conducted by an obstetrician, lent to the state by the Children's Bureau, were attended by more than 500 physicians. A nurse from the state bureau's staff assisted in arrangements and in the clinic work.

More than 70 prenatal conferences have been conducted in rural districts of Minnesota by prominent obstetricians since January, 1924, and more than 800 prospective mothers have been reached. The attending physicians have been present at the examination of their patients, and each case has been discussed with the physician in attendance. Talks on the hygiene and care of pregnancy were given to the groups of prospective mothers, and talks also were given before the assembled physicians, who thus had the advantage of graduate instruction in obstetrics and prenatal care.

The nurse who acted as prenatal supervisor on the staff of the Oregon Bureau of Child Hygiene devoted her attention to the out-patient prenatal clinic of the University Medical School, which serves as a teaching center for medical students. Physicians graduated from the university furnish much of the medical service to both rural and urban districts. The influence of good prenatal and confinement care is reflected in the lowered rates of deaths of infants in the first month

of life—deaths which are due largely to prenatal and natal causes.

Instruction was given in Alabama in the form of demonstration pediatric clinics, conducted for physicians by the pediatrician on the staff of the state bureau of child hygiene and public-health nursing. The physicians brought children who were their own patients to the clinics for examination by the pediatrician; round-table discussions were devoted to the most difficult cases. In most of the counties at least one meeting was held at which no patients were present, but pediatric problems were discussed. In three counties, at the request of the physicians, open meetings for mothers were held, at which talks were given on infant and child care.

Pediatricians employed by the Ohio Division of Child Hygiene conducted child-health conferences occasionally in the 18 new permanent child-health centers established during the year. These conferences were intended to stress the importance of periodic physical examinations by the family physician.

Five-day institutes for training "doctors' helpers" were held in various parts of Virginia. These were intended to train women to give needed neighborly service, but those who took the entire course were better qualified than the average midwife and could obtain permits to practice midwifery.

Ten graduate courses for physicians—seven in pediatrics and three in obstetrics—were given in New York at the request of county medical societies. Seven graduate courses in maternity hygiene given for nurses were completed by 104 nurses. Three four-lesson courses in nutrition were given to nurses and three to mothers, and 54 single lectures on the subject were given to nurses, physicians, home-economics teachers, and lay groups. Fifteen of the lectures were accompanied by demonstrations. Child-health conferences conducted semiannually on a county-wide basis under the auspices of county medical societies were an important feature of the year's work. The societies appointed physicians to make the examinations, the physicians being paid from maternity and infancy funds. There was a noticeable increase in the number of such conferences in the year under review.—*United States Daily*.

Pending Legislation

The following review of pending legislation in the United States, of interest to the medical profession, has been made up by Dr. William C. Woodward, of the bureau of legal medicine and legislation of the American Medical Association. It was printed in a recent issue of the *Bulletin* and a part of the review is given herewith:

The number of patients treated at public expense for diseases and injuries of civil life who were able themselves to pay for such treatment nowhere appears in available records. The records do not show the number of applications, if any, for treatment at public expense for injuries and diseases of civil life that were rejected because of the absence of available beds. Nor do they show even the nature and extent of the suffering among veterans of the military service because of their inability to pay for hospitalization, medical and surgical treatment, and nursing, and the inability or unwillingness of the states in which they hold their citizenship to afford relief for their own people. But even in the absence of such information, essential to an intelligent understanding of the problem, pending legislation proposes a substantial expansion in the federal program for the treatment of diseases and injuries of civil life, at government expense, enlarging the nature and extent of the service to be rendered and the number of beneficiaries. Pending legislation proposes, too, an enlargement of the medical, surgical and hospital facilities at the command of the Veterans' Bureau, through an immediate investment by the federal government of from \$16,000,000 to \$25,000,000 in hospital property.

Enlargement of Conditions Under Which Treatment May Be Demanded.—The World War Veterans' Act, 1924, now gives to every honorably discharged veteran of the Spanish-American War, the Philippine insurrection, the Boxer rebellion, and the World War, the right to hospitalization for all neuropsychiatric and tuberculous ailments and diseases, paralysis agitans, epidemic encephalitis, amebic dysentery, and the loss of sight of both eyes, without regard to the origin of

such ailments or diseases. It is now proposed to add to this list of diseases for which treatment at government expense may be demanded as a matter of right, even though they were contracted in civil life, leprosy and chronic constitutional diseases, such as diabetes, heart disorders, chronic stomach disorders, and kidney diseases. Another bill breaks down all distinctions as to the nature of the diseases or injuries from which patients must suffer in order to be able to demand, as a matter of right, hospitalization at public expense; it simply directs the director of the Veterans' Bureau to provide hospitalization, medical treatment, nursing, and all necessary care of disabled ex-service men in the World War, regardless of the origin of their respective disabilities. But, lest there be any misunderstanding on the part of the director as to the extent of the service that he is to render for the relief of diseases and injuries of civil life, another bill requires the Veterans' Bureau to provide, without charge therefor, in addition to the care, treatment and appliances authorized by law, hospital, dental, medical, surgical and convalescent care and treatment, and prosthetic appliances for any veteran of any war, military occupation or military expedition, without regard to the nature or origin of the disability or disabilities of such veteran.

Compensation for Disabilities of Civil Life.

—If Senate Bill 2601 should be enacted, veterans would be entitled not only to hospitalization and to medical and surgical treatment and nursing, for diseases and injuries incurred in civil life, but also to compensation benefits while hospitalized on account of such diseases and injuries. This bill provides that all persons availing themselves of treatment under the provisions of the law who were in active service between April 6, 1917, and July 2, 1921, shall be given a partial and temporary rating for the period of hospitalization, and that compensation benefits shall be paid to them without reference to service connection; and when a veteran has been given a rating of less than 10 per cent for disabilities he is to be advised by the bureau to enter a hospital for treatment and to be given a temporary total rating for the period of entrance into such hospital as may be

designated by the director until the date of discharge from the hospital. Whether this rating for disabilities is to be based solely on disabilities resulting from the discharge of duty or on disabilities resulting from diseases and injuries contracted in civil life, the bill does not say. But confinement in a hospital may be irksome, or it really may not be the best treatment for the patient, so a bill has been introduced that authorizes any ex-service man who has an active tuberculous disease and is entitled to hospitalization to elect whether he will be hospitalized or commute his right to hospitalization into a cash payment of \$4.75 a day, such payment to be in addition to any compensation benefits granted to him.

Enlargement of Classes Entitled to Hospitalization, Etc.—So far, we have discussed only the proposed enlargement in the scope of the diseases and injuries to be treated, and in the nature and extent of treatment. But it is proposed also to enlarge the classes of persons entitled to treatment. One of the pending bills proposes to extend the benefits of hospitalization and all other benefits conferred or to be conferred under the World War Veterans' Act to all retired members of the army, navy or marine corps, and this would cover all future retired persons within any of the classes named, as well as those now on the retired list. The director of the Veterans' Bureau is authorized, too, to provide hospital treatment for nurses who, while in the employ of the bureau, are injured or contract disease "coincident" to the time of their employment. The bill is silent as to whether the injuries or diseases for which hospitalization is to be afforded are or are not such as may be contracted in the line of duty. Another bill grants to all veterans now in receipt of pensions as a result of disability the right to receive out-patient treatment at any regional office of the Veterans' Bureau.

A bill within the same general scope as those heretofore discussed, but of a somewhat different tenor, authorizes the treatment of employees of the postal service who are suffering from tuberculosis, nervous diseases and kindred occupational ailments, by the U. S. Public Health Service and hospitals and

sanatoriums conducted by the U. S. Veterans' Bureau. The federal government already undertakes to furnish medical and hospital services and supplies to every federal employee injured in the discharge of duty for a reasonable period after the occurrence of the injury. Such relief is to be furnished by U. S. medical officers and hospitals. For the purpose of such relief the word "injury" includes any disease proximately caused by the employment. The purpose of the pending legislation is therefore not apparent, if it is intended to provide treatment for the diseases named only when contracted in the course of employment.

Enlargement of Hospital Facilities.—It has already been shown that approximately one-half of the admissions during the fiscal year 1927, to hospitals under the jurisdiction of the Veterans' Bureau, were for the treatment of diseases and injuries having no relation whatever to military service. It may be that this condition has suggested that it should be possible to abandon some of these hospitals, or at least to reduce their bed capacity. At any rate, a bill has been introduced providing that no hospital under the control and jurisdiction of the Veterans' Bureau shall be abandoned or reduced in patient capacity except as required by specific act of Congress or because of the failure of Congress to appropriate therefor. And to assure to the Veterans' Bureau an abundance of hospital accommodations at all times, it is proposed to appropriate from \$16,000,000 to \$25,000,000 to provide additional hospital and out-patient dispensary facilities for persons entitled to hospitalization under the World War Veterans' Act, 1924, as amended. It is true that the official hospital building program of the Veterans' Bureau states that the purpose of the proposed construction of additional hospital and out-patient dispensary facilities is to enable the bureau to care for its beneficiaries in Veterans' Bureau hospitals rather than in contract temporary facilities and other institutions, but legislation is pending that will specifically authorize the director of the Veterans' Bureau to care for patients suffering from diseases and injuries not of service origin in hospitals other than government hospitals, a right that he can now exer-

cise only in the insular possessions of the United States.

CONCLUSION

Time and space have permitted only a limited discussion of pending legislation relative to hospitalization, medical and surgical relief, and nursing, at the expense of the federal government, for patients suffering from diseases and injuries incurred neither in military nor in any other federal service. Enough has been said, however, to show that the principle underlying any such scheme for relief should be established and made clear, and the end to which its adoption is likely to lead should be determined, before the pending legislative program is acted on.

If the federal government is to enter upon a permanent program of hospitalization, medical and surgical relief, and nursing for all diseases and injuries whatever, without reference to their nature or origin, pending legislation may possibly serve to open up that program and to carry it on until the federal service can be expanded so as to meet for all time the needs of the entire population. If, however, it is proposed to plan merely for the benefit of those members of the present generation who served in the World War and other wars, military expeditions and military occupations of the past, then it would seem worth while to consider carefully the relative advantages of the proposed establishment of a system of government hospitals throughout the country, manned with highly organized and highly trained staffs, only to see them abandoned and their staffs scattered as the present generation of veterans dies off. If relief is to be furnished only to veterans of the World War and others, would it not be more reasonable to furnish them treatment in state, city and private hospitals near their places of residence? To scatter government institutions throughout the country means to compel veterans, at great expense to the government and inconvenience to themselves, to travel to those hospitals for treatment, thereby debarring from treatment veterans who for any reason are unable to travel. In estimating the relative advantages of these two methods of affording relief, the expense and hardship of travel must be taken seri-

ously into consideration, for it is hardly likely that the federal government will ever establish for its beneficiaries a system of hospitals so widely distributed throughout the country as are the state, municipal and private hospitals whose resources are now available on fair terms, or will be made available on fair terms if the program of the federal government for hospitalization offers any reasonable inducement.

Even if hospitals established by the federal government could be established and operated at the present day as effectively and as economically as privately maintained hospitals of the same character—and concerning that point no opinion is here expressed—certainly as the number of patients in the government hospitals diminishes as veterans entitled to relief die off, the cost per patient per day in the government established and maintained hospitals would increase. And if then to meet the situation the number of government hospitals is diminished, the expense and hardship of travel to and from the hospitals that remain would be increased, and by reason of the distance and the hardship of travel an increasing number of the surviving veterans will be barred from receiving the federal benefits to which lawfully they are entitled.

But if the federal government is to provide at public expense for veterans or any other group, necessities of life that have not been rendered necessary because of any service, military or otherwise, rendered to the federal government, why should it provide only hospitalization, medical and surgical service, and nursing? Veterans and others, in order to live, need shelter, fuel, clothing and food quite as much as they need hospitalization, medical and surgical services, and nursing. If the government supplies one, why should it not supply the others?

The service that the federal government now gives and that it proposes to enlarge is not a pension, for it has no relation to any disability arising out of the federal service, and it is not available for any veteran, no matter how badly he may be disabled, who is so situated that he can not avail himself of the hospitalization afforded by the Veterans' Bureau. The hospitalization and treatment at federal expense under consideration is not

even a form of relief for destitution, for the destitute veteran who is suffering from a disease or injury, but who, because of his disability or otherwise, is unable to go to a hospital maintained by the Veterans' Bureau, can not receive such hospitalization and treatment, whereas the rich veteran, no matter how wealthy, is entitled to hospitalization and treatment if he can enter the hospital.

The hospitalization, medical and surgical service, and nursing given by the federal government for injuries not of service origin is a gift, pure and simple. It is a gift that is inequitably tendered, however, for it can be accepted only by those veterans who contract disease or incur injury in civil life, and who are situated so that they can enter hospitals under the jurisdiction of the Veterans' Bureau. No other veteran need apply. Why not enlarge the federal gratuity so as to include shelter, fuel, clothing, and food, so that every veteran sick and well can accept it, even in his own home? This would put all the veterans on an equal footing. And why not provide for the commutation into cash of the gratuities thus offered, for that may be arranged on a basis that will cost the federal government no more and that will put all veterans purely on the same footing, and provide a continuous bonus available to all veterans alike?

And, if it be a socially, economically, and politically sound procedure for the government to provide the necessities of life for one group of citizens, in order to enable them to meet needs that have not even the remotest relation to any service they have ever rendered to the government and that have not arisen out of any physical or mental handicap on the part of the members of the group, why would it not be equally sound from a social, economic and political standpoint for the government to provide in the same manner for all citizens alike? If we are to have socialism, why not have it in its entirety?

Package Library

That the long-talked-of "package library" of the West Virginia State Medical Association will become a reality within the next

few months was practically assured on July 30 when officials of the board of the Charleston Public Library offered the association the exclusive use of three rooms in the library building for the purpose. The "package library" will be conducted by the executive secretary and will consist principally of the medical magazines and periodicals that are sent in as exchanges with the WEST VIRGINIA MEDICAL JOURNAL.

The package library plan has been successfully worked out in Wisconsin and the Wisconsin plan will probably be followed by the West Virginia State Medical Association. It is conducted around the semi-annual index published by the American Medical Association and reprints of all articles are kept on file. When a request is received from a member of the Wisconsin association for literature on a particular subject, all of the available reprints on that subject are made into a package and mailed out at the expense of the doctor who made the request. At the end of three weeks, the package is mailed back to the library and the reprints again placed on file. The Wisconsin library, in this way, serves every member of the association.

If the new rooms offered by the library board are accepted, they will also provide sufficient room for meetings of council and committees that convene in Charleston from time to time. It is understood further that the office of the executive secretary will be moved to the library building from its present location.

Membership

Considered from the standpoint of numbers, the membership of the West Virginia State Medical Association is much further advanced at the present time than it was on the first day of August in 1927. To date, there are 1,017 paid-up members of the association and at the same period last year there were considerably less than one thousand members in good standing. There were 1,054 members in good standing at the close of 1927 and there is every indication that the number will go over the eleven hundred mark this year.

The Doctor's Business

Our readers may spend a few minutes profitably in studying Pusey's recent article under the general head of "Medicine Economics." He thinks "it might be fitting to consider some of the problems of our profession as a bread and butter occupation," and he frankly calls this "the *business* of the practice of medicine." How many men we all know who will be horrified or at least pretend so to be by this bold designation! Rarely do we hear one physician ask another, "How is business?" Most of us prefer to escape in fancy from the fact that we are all in the business of medical practice and so we ask one another, "How is practice these days?" Clearly this is a product of the English viewpoint that those who are in business are in some way engaged in an inferior occupation, and we try to escape the thought by a designation that is more euphemistic.

Pusey well says, "It is medicine's glory that altruism is ingrained into its traditions." Yet he feels that we must not entirely neglect the business of the profession by which we live. He points out the numerous aggressions which are being made upon us as private physicians, and shows how a certain self-appointed commission "is proposing to study the whole subject of medical practice." He thinks "the commission is of the opinion that medical practice as it is now conducted should be wiped out and replaced by state medicine and industrial and other forms of corporate practice."

The aggressions of teaching hospitals, medical schools and dispensaries, beginning with the practice of medicine for the indigent, have increased until at the present time many such organizations have stepped over into practice for pay on patients who are not charity cases and at what are substantially cut rates. Various lay institutions have also attempted to organize and conduct practice, and many such organizations are employing physicians whom they pay and from whom a profit is made. Pusey recommends and believes that the problem is worthy of profound study and that we should not be content with investigation alone but should ourselves

demand a constructive policy and participate in it.

To the writer the danger of socialism in medicine and of state control of medicine is increasing. Something must be done to check the progress of these tendencies. State medicine can no more succeed than did national control of railroads, and the more forms of medical practice that are put under state care the worse it will be, not only for the physician but for the state and its citizens. In theory, to many state control seems ideal. But one has but to contact such phases as are under state control to realize its stultifying effects on scientific progress and individualism. Dr. Pusey deserves the congratulations and commendations of a united profession for his frankness and courage in attacking a serious problem which threatens the rights of its members.—*Northwest Medicine*.

Raleigh-Mercer Meeting

A joint meeting of the Raleigh and Mercer County Medical societies was held at eight o'clock on the evening of Thursday, July 26, in the Beckley Hotel Annex dining room, Beckley, W. Va., with 40 members in attendance. There were 20 members present from each society, and Dr. C. A. Ray, of Charleston, state president, made his official visit to the Mercer society at the joint session. The meeting was followed by a buffet supper served at the hotel.

The scientific papers of the evening were presented by Dr. O. S. Hare, of Bluefield, on "Physical Measures in Gynecological Conditions"; Dr. J. E. Blaydes, of Bluefield, on "Some Points for the General Practitioner in Regard to Nasal Accessory Sinuses"; by Dr. R. R. Stuart, of Bluefield, on "Anhydremia," and a case report by Dr. Andrew Amick, of Bluefield. All of the scientific papers were freely discussed by the doctors attending the meeting.

During the evening, Dr. Ray made an impromptu talk on the work and accomplishments of the association during the year. An impromptu talk was also made by Dr. Sam Holroyd, of Athens, member of the Mercer County society. The meeting was one of the best that has been held here for some time.

W. D. SIMMONS, *Secretary*.

WOMAN'S AUXILIARY

Our New Officers.

Newly elected officers of the Woman's Auxiliary of the West Virginia State Medical Association to serve during 1928 are as follows:

President, Mrs. J. P. Lilly, of Morgantown.

Vice President, Mrs. J. E. Wilson, of Clarksburg.

Recording Secretary, Mrs. W. C. Swann, of Huntington.

Treasurer, Mrs. W. D. Simmons, of Slab Fork.

Delegates to A. M. A. Auxiliary, Mrs. James R. Bloss, of Huntington, and Mrs. R. V. Shanklin, of Gary.

Journal State Editor, Mrs. T. M. Barber, of Charleston.

Assistant Editor, Mrs. Hugh Thompson, of Charleston.

The above named officers were selected at the Fairmont state meeting on May 22, 23 and 24, inclusive. Mrs. R. V. Shanklin, of Gary, who was elected president at the White Sulphur meeting in 1927, assumed the duties of the office at the Fairmont session.

Chairmen of standing committees were appointed as follows:

Hygeia, Mrs. H. A. Whistler, of Clarksburg.

Educational Program, Mrs. Hugh Thompson, of Charleston.

State Editor, Mrs. T. M. Barber, of Charleston.

State Organizer, Mrs. B. S. Preston, of Charleston.

State Parliamentarian, Mrs. J. S. Klumpp, of Huntington.

Central West Virginia.

On July 18th a permanent auxiliary to the Central West Virginia Medical Society will be organized at Webster Springs. The Auxiliary met last fall and elected temporary officers. It has carried on all winter with this organization and will meet this month to complete its plan.

Benefit Bridge Given

The National Secretary has asked that benefits (bridges, teas, etc.), be given by the local auxiliaries to obtain money for the purchase of Hygeia for the schools. As a result of this appeal the Women's Auxiliary of the Kanawha Medical Society entertained with a successful benefit bridge and tea at the Business and Professional Woman's Club on June ninth. There were twenty-four tables in play with several additional tea guests. The Auxiliary realized fifty-one dollars from this event, which will be used to place Hygeia in the rural schools of the county. The committee in charge was, Mrs. V. T. Churchman, Sr., chairman, assisted by Mrs. W. A. Thornhill, Mrs. I. P. Champe, Mrs. Daniel Barber, Mrs. Hugh Robins, Mrs. J. T. Sharp and Mrs. Mrs. V. T. Churchman, Jr. It should be noted that the Monongalia County Auxiliary has already given a benefit of this nature. Other auxiliaries please note!

Assistant Editor.

Mrs. Hugh Thompson, of Charleston, has been appointed assistant editor for this page and will have charge of a new development which will appear monthly beginning with the August issue. A portion of the page will be devoted to discussing programs for the meetings and a typical program will be given each month.

Minutes of the Woman's Auxiliary

Tuesday, May 22, 1928.

The fourth annual meeting of the Woman's Auxiliary of the West Virginia State Medical Association was held in Fairmont, W. Va., May 22d, 23d and 24th, the first session meeting Tuesday, May 22d, at 10 o'clock, in the Y. M. C. A. building. The meeting was called to order by the President, Mrs. B. S. Preston, of Charleston.

Mrs. L. D. Howard, of Fairmont, made the address of welcome, to which Mrs. J. S. Klumpp, of Huntington, responded.

Telegrams sending greetings were then read by the Secretary, Mrs. W. C. Swann, of Huntington, from Mrs. John O. McReynolds, president of the Auxiliary of the A. M. A., and from Mrs. M. T. Mendeloff, president of the Kanawha County Auxiliary. The roll call and report of counties followed.

Mercer: No delegate.

McDowell: Report read by Mrs. R. V. Shanklin, of Gary.

Cabell: Report read by Mrs. J. S. Klumpp, Huntington.

Parkersburg: No delegate.

Kanawha: Report read by Mrs. B. S. Preston, of Charleston.

Monongalia: Report by Mrs. J. P. Lilly, of Morgantown, W. Va.

Releigh: No delegate.

Harrison: Report by Mrs. B. S. Brake, of Clarksburg.

After the roll call Mrs. R. V. Shanklin, of Gary, president-elect of the Auxiliary, was introduced by Mrs. Preston, who announced that Mrs. Shanklin would assume her duties as president Thursday morning, May 24th, at an executive meeting to be held at that time.

Mrs. A. T. McCormack, president of the Auxiliary of the Southern Medical Association and also president of the Kentucky State Auxiliary, then very interestingly addressed the ladies, telling of some of the work being done by the Auxiliary of Kentucky.

Immediately after Mrs. McCormack's address the meeting adjourned.

The second session met the same day at two o'clock in the afternoon. Mrs. Preston presided and opened the meeting by asking for the report of the State Editor. After the reading of the report there was a general discussion as to how to improve the Auxiliary's page in the JOURNAL. Mrs. McCormack suggested that for the items to be interesting they must tell "who, what, when and where."

The report on organization was then read as follows:

8 counties organized; 5 counties reported to secretary; total membership, 121.

Reports of treasurer, Mrs. W. D. Simmons, of Slab Fork, and of Mrs. J. P. Lilly, of Morgantown, chairman of Hygeia, were read and approved.

Following the reports Dr. Blanche Haynes, of the Children's Bureau, of Washington, D. C., gave a very instructive address. Dr. Haynes was introduced by Mrs. Jane Dillon, of the State Health Department, and it was through her that the Auxiliary was given the privilege of hearing Dr. Haynes.

The meeting adjourned.

Wednesday, May 23, 1928.

The Wednesday morning session was held in the ballroom of the Fairmont Hotel at ten o'clock. A telegram was read by the president bringing greetings from Mrs. Allen Bunce, president of the Auxiliary of the A. M.

Business followed and it was moved and seconded that the Auxiliary of the West Virginia State Medical Association become a member of the Auxiliary of the Southern Medical Association by paying one dollar for each county organized in the state. This motion carried, and the treasurer was instructed to pay the eight dollars dues.

The report of the nominating committee was then heard as follows:

President-elect, Mrs. J. P. Lilly, Huntington.

Vice-President, Mrs. J. E. Wilson, Clarksburg.

Recording Secretary, Mrs. W. C. Swann, Huntington.

Treasurer, Mrs. W. D. Simmons, Slab Fork.

(Signed by)

MRS. R. P. DANIEL, *Chairman,*

MRS. E. R. TAYLOR,

MRS. C. A. RAY.

Election of officers for the year 1928 followed and the above were unanimously elected in a body, the corresponding secretary to be appointed by the president. Mrs. R. V. Shanklin, as president, and Mrs. J. R. Bloss, as delegate, were appointed to attend the Auxiliary meeting of the A. M. A. to be held in Minneapolis in June.

Greetings to the State Auxiliary were brought by Mrs. Charles H. Smith, of Uniontown, Pa., president of the Woman's Auxiliary of Pennsylvania. Mrs. Smith was accompanied to Fairmont by Mrs. H. A. Heise, also of Uniontown.

Miss Marion Bell, County Health Nurse of Marion County, gave a demonstration of home hygiene work done by members of a class of Barrackville School, and a health play was also presented.

The president then turned the meeting over to Miss Ada Coddington, of Charleston, a member of the State Department of Health, who introduced Dr. Valeria Parker, of New York City, widely known woman physician and president of the American Social Hygiene Association. Dr. Parker is also a member in an advisory capacity of the committee on the trafficking of girls and women of the League of Nations, and president of the National Woman's Council. The subject of her address was "The Task of Social Hygiene." The meeting then adjourned until one o'clock, when a very delightful luncheon was given the visiting ladies of the Marion County Medical Society in honor of Mrs. Smith and Dr. Parker.

After lunch Dr. Parker gave another very interesting address on "The Work of the National Woman's Council."

A rising vote of thanks was then extended the following:

Mrs. Howard for her address of welcome.

The Junior League for the delightful tea.

Mrs. A. T. McCormack; Miss Marian Bell.

Miss Ada Coddington for bringing the Auxiliary Dr. Valeria Parker.

Mrs. Jane Dillon for securing Dr. Blanche Haynes, and to the ladies of Fairmont for a lovely luncheon.

The fourth annual meeting of the Auxiliary then adjourned to be followed by a short executive session Thursday morning.

Executive Meeting, May 24, 1928.

At the meeting of the Executive Board, held Thursday morning at ten-thirty o'clock, and presided over by the new president, Mrs. R. V. Shanklin, it was moved by Mrs. J. S. Klumpp and seconded by Mrs. W. C. Swann that the Auxiliary have its own President's night and that a pin be awarded each year on this night to the outgoing president in appreciation of her services to the Auxiliary. The motion carried. It was also voted that the Auxiliary pay the expenses of the state president each year to the Auxiliary meeting of the A. M. A.

Mrs. B. S. Preston, of Charleston, was appointed State Organizer, and Mrs. J. S. Klumpp, of Huntington, State Parliamentarian.

Chairmen of standing committees were appointed as follows:

Hygeia: Mrs. W. A. Whisler, Clarksburg.

Educational Program: Mrs. Hugh Thompson, Charleston.

State Editor: Mrs. T. M. Barber, Charleston.

Respectfully submitted,

MRS. ANNE YATES SWANN,

Secretary.

Registration: Executive Board, Mrs. B. S. Preston, Mrs. R. V. Shanklin, Mrs. W. C. Swann, Mrs. J. R. Shultz, Mrs. J. S. Klumpp, Mrs. J. P. Lilly, Mrs. B. S. Brake; Delegates, Mrs. J. E. Wilson, Mrs. W. C. Powell, Mrs. E. R. Taylor, Mrs. J. R. Bloss, Mrs. R. P. Daniel, Mrs. C. F. Hicks; 27 members; 11 visitors.

The West Virginia Medical Journal

Directed and Edited by the Committee on Publication

[The Committee on Publication is not responsible for the authenticity of opinion or statements made by authors or in communications submitted to this Journal for publication. The author or communicant shall be held entirely responsible]

JAMES R. BLOSS, *Editor-in-Chief* - - - - - Huntington

ASSOCIATE EDITORS:

WALTER E. VEST
Huntington

HARRY M. HALL
Wheeling

J. HOWARD ANDERSON
Marytown

C. A. RAY
Charleston

MR. JOE W. SAVAGE, *Secretary-Business Manager*, Charleston

Entered as Second Class Matter, January 1, 1926, at the Postoffice at Charleston, West Virginia

Volume XXIV

SEPTEMBER, 1928

Number 9

SOME OF THE SURGICAL ASPECTS OF INFANTILE PARALYSIS *

By ALBERT H. FREIBERG, M.D., LL.D., F.A.C.S.

THAT it should be necessary to subject a large number of individuals to long-continued courses of treatment and to many operative procedures because of the residual effects of an acute infectious disease, must be regarded as an opprobrium to modern medical science. It is an opprobrium which we may not deny. It constitutes a shortcoming of preventative medicine which has thus far resisted most energetic efforts on the part of scientific investigators. In spite of devoted study and labor, both in the laboratories and in the clinical field, we are not in position today to speak of a consensus concerning the cause and the modes of transmission of this disease which has taken such frequent and heavy toll in human life, but which has always left in its wake long trails of wrecks; human machines disabled in varying degrees, but nearly always with their whole lives still before them. I need not dwell further upon this phase of the subject, to this audience. You know, only too well, in what degree the residual paralysees of acute anterior polio-

myelitis may embitter life by deformity and to what extent it may frustrate, or render even impossible, the struggle for a livelihood. Does it not, indeed, often seem to us almost a cruelty of Nature that the life expectancy of many of these unfortunates is not materially shortened by the disease? Are there not many to whom the termination of life would seem a merciful thing, a veritable *coup de grace*? For those most grievously stricken in a physical sense are not seldom such upon whom Nature has bestowed rich gifts of intellectuality. Alas! that with intellectual superiority there does not always go that optimism which is necessary to combat the contingent frustrations and disappointments of life!

I shall ask your indulgence for digressing far enough to make clear what is the nature of my purpose in this discussion. I would avoid, if possible, misunderstanding of my meaning when I speak of the "surgical aspects" of infantile paralysis. I am inclined to believe that, when one speaks of surgery today, the conception which is conveyed to most

* Oration in Surgery: West Virginia State Medical Association, May, 1928.

minds is bound up not only with the vision of the operating room, but also with cutting procedures of one kind or another. It is, moreover, quite natural that this should be the case since the victories to be achieved by operative procedures are frequently of the most brilliant character. However, it is possibly the chief purpose of this discourse to consider what is the proper place of operative intervention in the scheme of things which we design with the invariable presumption that we intend to do the best possible for our patient, entirely oblivious of our own pride of accomplishment. Nor may this last be lightly said, since it implies a kind of television on our part; some of the most useful operations at our command are of quite destructive nature. The proposal to deliberately and irretrievably destroy a function which is still intact should surely bring with it the implication that we have a definite picture in our minds of the character of the end result; at least within the bounds of human probability. This must bring with it a further implication, however, and one even more difficult of evaluation than the physical results of technical procedures. I refer here to the psychology of the patient, his social environment and the economic situation which is bound up with both of these.

At this juncture I wish to recommend, to such as have no acquaintance with it, the charming little book of Allbutt entitled "The Historical Relations of Medicine and Surgery." I beg leave to quote from its preface:

"That in later ages in Europe the field of surgery has been avoided by the 'physician,' and the field of medicine forbidden to the surgeon, and that by this unnatural schism MEDICINE has suffered much bane, is illustrated in history, as it is day by day, in the fragmentation of our work.

* * * * *

"How many years have we lost in such maladies as infantile palsy, diseases of the stomach, diseases of the pelvis, and so forth, because surgeons pretend to be 'afraid to trench upon' a large and essential part of their own pursuit, and because physicians have been brought up in unhandy ways."

Surgery today must include more than operative surgery. Orthopedic surgery in its beginnings represented the application of the principles of mechanics to the disturbances of the trunk and extremities. It was almost entirely non-operative. But operative surgery

had not yet been developed upon the basis of anesthesia and asepsis. Following this development, orthopedic surgery acquired a new relationship; without sacrifice of that which had been established by its mechanical forefathers, it became one of the heirs to the general surgical legacy coming down from Pasteur and Lister. I should therefore prefer to speak of orthopedic surgery as being the application of surgical principles to the human body, in respect of *its* mechanical functions. Regarded in this manner, it becomes as "surgical" to avoid an operative procedure as to employ it. I would, on the other hand, have decided objection to the view that a procedure becomes more acceptable simply by virtue of its being non-operative, and *vice versa*. Aside from the danger to life which may be involved, a danger which has now been reduced to exceedingly low terms, the choice of operative or non-operative procedure should lie in the striving for eventual or, better, definitive efficiency. It is this fact in its relationship to the more mechanical functions of the body which has given rise to the expression that "the orthopedic surgeon thinks in terms of function." The fact is that, whether or not he does, he should do so, and nowhere more so than in connection with the group of cases which we have at present under consideration.

From the inception of acute anterior poliomyelitis and until the local tenderness of the affected muscles has entirely disappeared, the patient is to be looked upon as battling with an acute infectious disease which must be recovered from in the same general way as all other systemic infections; namely, by the development of an immunity. The problems involved in bringing this about and in carrying the patient through his critical illness; the duty of protecting others from the danger associated with the presence of a person with a transmissible disease; the study of the nature of the infection itself and the deduction therefrom of the means by which immunity may be acquired before irreparable damage has been done to the nervous system; these are problems of internal medicine, of bacteriology, of preventive medicine. After a period varying between four to six weeks after the onset of the disease, the tenderness

of the affected parts having disappeared, the patient has now arrived at the stage of convalescence and the problems to be solved are those of "external medicine" or surgery. They concern the conservation of the mechanical functions of the peripheral parts and the re-establishment of such as may have been lost. The repair of the damage to the central nervous system goes on in varying degree for a period of at least one year and possibly extending to a period of two years. But this is beyond our power to control, and there is no evidence to show that we have any means at our command to influence what goes on in the central nervous system beyond maintaining the general vegetative functions of the organism in a condition of highest possible efficiency. There is, as I have already implied, not the slightest testimony to show that anything we may do to the peripheral parts will have the least effect upon the regenerative process in the spinal cord or the nerve radicles which emerge from it. The fact that galvanic stimulation is capable of bringing about a visible contraction in the paralyzed muscles was, for many years, regarded as evidence that it would assist in the revitalization of such muscles. There are, however, no scientific nor, in my opinion, even clinical data to show that this takes place as the result of such treatment, nor that it occurs more surely or more rapidly than without it. The resemblance between the muscle contraction produced by electric stimulation and that produced by a nerve impulse is a merely physical one and by no means necessarily, or even probably, a physiological one. It has not been shown that electrical stimulation and its resultant muscle contraction are followed by that metabolic change which brings about the increase in strength and volume of muscle which we expect and observe from active physiological exercise. On the contrary, clinical experience seems to show that the re-appearance of muscle function takes place just as rapidly and with as much, or as little, likelihood when electricity is used as when it is not. If, on the other hand, electric stimulation is being employed in the belief that good is being done, and the other means of treatment which imply the improvement of the local circulation and the protection of the

damaged muscle from mechanical insult are being omitted, then a positive harm ensues to the patient and one which may greatly impair the character of the end result. Having gone this far, I may not refrain from adding the statement that there is not a scintilla of proof to show that any manipulation of the spinal column itself influences either the intrinsic circulation in the spinal cord or that, albeit in some manner yet mysterious, it has any effect whatever upon the regenerative process upon which the degree of innervation of the muscles is necessarily contingent. Ultra-violet rays are now on the stage and apart from certain physiological effects which they are known to have upon the skin and in modifying the deposition of lime salts in the bones of young children, they are being employed for many other purposes without a rational basis of either scientific or clinical character. I have lately seen a child less than eighteen months old, with paralysis of all of the anterior muscles of the foot, in whom a fixed equinus deformity has been permitted to develop although it has been receiving ultra-violet radiations thrice weekly. If this child's foot had been splinted to slightly less than ninety degrees with the leg, and no other treatment given during the six months which have elapsed since the disease began, the treatment might have been neither ideal nor even adequate, but it would have been much better and would have avoided the necessity of correcting a fixed deformity; this has now become inevitable. This child has not only not been helped; it has been harmed by the treatment.

I have already stated that the surgical problem of infantile paralysis, by and large, consists of two terms, to-wit:

1. The *conservation* of the mechanical functions of the peripheral parts involved by the disease, and
2. The *re-establishment* of such as have been lost or materially impaired.

In a general way, we may say that the watchword of the convalescent stage is *conservation*; conservation comprises, first of all perhaps, mechanical control. Let us illustrate by means of one of the simplest and commonest examples: the foot whose anterior muscles are paralyzed and whose gastrocnemius-

soleus have remained, or have again become, active. By reason of the effect of gravity and because of the inability of the anterior muscles to dorsal-flex the foot, together with the pull of the gastrocnemius whose muscle tone is constantly in evidence, the foot is continuously held plantar-flexed; in equinus position. The impotence of the anterior or dorsal-flexing muscles does more than to throw the balance of power into the still potent posterior or plantar flexing group, however. Because of their lack of tonus, their inability to resist, the anterior muscles become overstretched; they become structurally longer than normal. When nerve impulses re-enter such an over-distended muscle, feebly as they do in the beginning, the muscle is unable to respond with evident or effective contractions; it is more than likely that in many instances this damage is permanent. It must be remembered that both the impairment and the return of power in individual muscles are very often fragmentary, but power is always to be conserved. If we conceive that the ultimate amount of restoration in a given muscle is to be 25 per cent of the normal, it will not be difficult to understand that comparatively little overdistention of this muscle may make this 25 per cent return not only ineffective but even unrecognizable. Proper splinting may be depended upon to prevent these things from happening; it may also be expected to prevent that "contracture" or structural shortening from taking place in the still potent muscles, which is the chief cause of fixed deformity during this stage.

The injunction that physiological rest be adequately provided for applies in principle and to an equal degree to any part of the body affected by the paralysis. However, because of the weight-bearing function which is involved and because this places an irresistible burden upon them, this admonition is of particular importance in the case of the spine and the lower extremities. Notwithstanding the heavy emphasis which has been placed on this point repeatedly, and by those of abundant experience, we constantly find patients being placed upon their feet as soon as they are able to do so. The fact that the wearing of braces makes it possible should not alter

the attitude which we take. It is a fact, however, that it does do so with many practitioners. I regret to say that this is even the case with some orthopedic surgeons. With the majority of them this is not so. Personally, I am in agreement with Lovett when he says that it would be best if none of these were permitted to bear weight until the lapse of one year* from the onset, as a minimum. The admonition that we insist so strongly upon rest and mechanical protection in this convalescent stage is not a vain one, nor is it based upon merely theoretical considerations. It is the result of careful study of the management on the part of those most interested and most experienced. If a fixed deformity has been permitted to develop when the anterior muscles of the foot have been paralyzed, it becomes easily apparent, even to the layman, in the appearance of an equinus; the patient can not get his heel to the ground. That the paralyzed muscles have become needlessly overstretched to the degree that the useful, even though incomplete, activity which is made possible by the return of nerve impulses may no longer be utilized, is not so apparent. There is no doubt in my mind that this situation often arises, not only in connection with poliomyelitis but also with many peripheral paralyses. I have had convincing evidence of it many times in the case of obstetrical paralysis of the shoulder, and this observation has formed the basis of a successful treatment which has become almost a routine with me. I may not, at this time, deal with details; I must concern myself with principles which are involved. When I come to discuss the matter of redeveloping the strength, during this convalescent stage, of those muscles which have been paralyzed, I arrive at a phase of my subject which is embarrassing. I must say that I have no substitute to offer for the presence of a well-trained person such as is found only too rarely in well-developed medical centers; in the rural communities she simply does not exist. Without her we shall speak vainly of accomplishing that which is possible by means of muscle training and massage. In their present connotation these call for special training and experience. Otherwise real harm may result. Local heat is of great value,

and let me grant some measure of use even to proper electric stimulation. I must nevertheless insist that no therapeutic apparatus and certainly no system of manipulation forms an acceptable substitute for the physiotherapist trained in this particular field. Contentment with the absence of such implies nothing else than satisfaction with less than the maximum of possible attainment.

Physiotherapy still requires to be saved from its friends. Notwithstanding the meritorious efforts of trained physiotherapists and the Council on Physical Therapy of the American Medical Association, there is still a very widespread and generally accepted conception that physiotherapy today means chiefly the possession and use of various forms of apparatus; for the most part, electric, and producing either light, heat, or both in differing combinations. The truth is that physiotherapy, even in its most modern form, has as its chief and most valuable attribute that it represents the development of primitive man's efforts to help his physical disabilities by the simplest of physical means. It now represents the application of our knowledge of anatomy and physiology to the use of head and hand assisted by the use of heat and cold and of water. There is nothing in the shape of apparatus which can not be dispensed with if we have the training that this statement implies. And, on the other hand, there is nothing which the most efficient apparatus can furnish which will constitute an acceptable substitute for it. What we need most is, therefore, not more and better machines, but more and better trained persons. Having such, we may profit much from good apparatus. Without thorough training, much apparatus will very likely have the effect of bringing many dangerously close to charlatanism.

I must here make the acknowledgment that while the vast majority of cases are destined to make enormous improvement during this convalescent period, there is a certain group in which, by reason of the severe degree of irrecoverable damage in the cord, this does not take place; do what we will. As I say these words there arises before me, alas! the figures of the children of some of my own colleagues.

It may be said in general terms that in this stage all operative intervention is to be prescribed, and there are extremely few exceptions to this rule. Such exceptions as exist may, indeed, be charged to the neglect of proper measures or to the employment of such as are inappropriate. Our functions, during this time, may be said to consist of three provisions:

- (a) The provision for physiological rest.
- (b) Protection from mechanical damage to the paralyzed muscles.
- (c) The development of strength in the recovering muscles by physiological activity which is carefully adjusted to their impaired responsive capacity and the stimulation of their circulatory nutrition.

When the chronic stage of poliomyelitis has arrived, we have come to the time when we must consider the advisability of certain operative interventions. I take it that you will agree with me when I say that the discussion of such operations in detail—such discussion as involves the indications, choice and technical minutiae of them, belongs not to a general gathering such as this. It should rather be reserved for those who apply themselves to this special field. For we are now arrived at a place where strict individualization is called for. The performance of operations in the absence of such individualization will have as its result not only purposeless procedures, but will frequently render impossible the subsequent performance of such as might be most serviceable, had not the ground have been taken from under our feet. At the same time, and at the risk of wearying you somewhat, I shall ask leave to discuss in general terms some of the factors which are comprised in this aspect of the large problem.

When may we feel that the patient has arrived at the so-called *chronic* stage? It seems certain, both on the ground of laboratory and clinical studies, that the end of the second year from the onset constitutes the final limit of true regenerative activity in the spinal cord; it is even likely that this period is too long. We should err greatly, however, in concluding with this arbitrary decision. In a clinical sense, we should not speak of the arrival of the "chronic" period until we find that, *in spite of appropriate physical*

management, embracing both mechanical protection and physical therapy, the functional conditions persistently fail to improve. We may not, here, govern ourselves by any arbitrary time limit. Cases are seen which are still improving, functionally, after three and even four years. If there is reason to believe that improvement has failed to take place by reason of neglect or the employment of means which are either inadequate or unsuitable, we may come to no conclusion until suitable measures have been instituted and continued sufficiently long to effectually appraise their result.

Most often, the paralysis involving an extremity is recovered from incompletely. As a result there is a loss of muscle balance about the joints. The pronator muscles of the foot being paralyzed, for illustration, the supinators having recovered either wholly or in part, structural shortening of these supinators takes place because they are never called upon to elongate or because the foot is not continuously held from supinating. The result is a deformity in varus, or supination-adduction. The foot can not now be brought into normal relation with the leg unless the contracted supinators are either stretched or, when this has become inveterate, made longer by a cutting procedure. This is fixed muscular deformity. If sufficiently long persistent, this may involve the ligaments and joint capsules also. If the patient walks on this crooked foot long enough, the bones also change their shape and we are dealing with an osseous deformity. Fixed deformity of either kind must be overcome before we can hope for further progress. If it lies in the soft parts only and is comparatively recent, it may most often be overcome by stretching. If, on the other hand, it is of very long standing or involves the bones, cutting procedures will be required. Excepting such situations where the paralysis is so extensive that it appears certain that no serviceable return of muscle action can be expected, the operative correction of fixed deformity should not be complicated with other corrective procedure. When the paralysis is so complete that the joint is flail, or almost so, we may proceed to permanently stiffen such joint should it appear otherwise desirable. I shall

later qualify this statement. When the procedure for overcoming the fixed deformity has been recovered from, and unless the paralysis be of the very extensive type referred to, efforts must now be made with patience and persistence to ascertain whether there may be brought about the return of muscle power of serviceable amount and kind. This is to be done by preventing the return of deformity by mechanical means and, at the same time, employing physiotherapeutic methods to stimulate muscular development and use. The effect of this plan has been, not seldom, such as to materially modify such projects for operation as we should otherwise have been tempted to make and which would thus have been imperfectly adapted to the situation. This situation we should have been unable to realize without this trial procedure.

The proposal that a surgical operation should be done in order to improve the function of a paralyzed member should not be made without a clear comprehension of the situation which exists, and in its totality. We require to know not only what is the state of the individual muscle functions at the time, but we need also to know whether a truly stationary stage has been reached. If it is even possible that improvement of function may be taking place or that it may be made to take place, it would surely be unjustifiable to proceed with any operative intervention whose purpose can only be to accomplish such a result. In order that we may be thus informed, it is necessary that we have record of the condition of the individual muscle groups, made with painstaking care from time to time. Only by comparing the records thus made at suitable intervals shall we be in position to draw trustworthy conclusions. Moreover, it is not enough, in the presence of an obvious muscle imbalance in a foot, to analyze this and assume therefrom that this or that operation requires to be done. Every patient who has arrived at the convalescent stage of poliomyelitis should have made a complete muscle examination of the trunk and extremities and this should be recorded on a suitable chart for future reference. This is as necessary as the complete physical examination of any other patient who is to be under observation for a consider-

able period of time. Such complete examinations will often uncover situations which would otherwise escape detection and which will prove to be most important to the patient. Such complete muscle tests have often disclosed that, by reason of concentration upon an obviously paralyzed foot, paralysis of the gluteal muscles has been overlooked; or, that our interest in a paralyzed lower extremity has permitted us to fail in recognizing that the spinal muscles have been damaged and, perhaps, the abdominals also. In our anxiety to put our patient on his feet, we may have permitted a scoliosis to develop and, only too likely, one of intractable character. All that has been said must make it apparent that this is poor ground for the casual observer, or the one with imperfect training and little experience; good fortune may not always be depended upon and the time in which we may prevent damage is soon gone. We may well say with Wilhelm Meister, "Judgment is difficult and opportunity transient."

Tendon Transplantation: When it was first shown that the tendon of an unparalyzed muscle could be transplanted so as to make this take the place of one which was paralyzed, it was felt that an enormous advantage had been secured for poliomyelitis patients. While this fact remains, and while tendon transplantation is still a most valuable operation, its field of usefulness has had to be greatly circumscribed and its precise indications defined; this quite apart from the necessary improvements in operative method. Naturally, unreasonable things were expected from tendon transplantation, in the beginning of our experience with it. It was not realized, at first, that a weak muscle may not be expected efficiently to take the place of one whose normal power is, perhaps, threefold that of the transplant which is available. It was not foreseen that a muscle must have its physiological mechanics rather rigidly respected; that a muscle whose course was normally in a straight line could not be expected to function as well in a curve, to say nothing of turning round a corner. Again, in some regards, the possibilities were underestimated rather than overestimated. Moreover, it had to be realized that, after all, no transplantation may be expected to restore to

an extremity its normal total sum of muscle power; it can only restore the muscle balance about a joint, and that imperfectly as a rule. Transplantation can not correct fixed deformity, neither may it be expected to overcome the lateral instability of a weight-bearing joint like the ankle. On the other hand, it constitutes one of our most valuable resources when suitably employed, and we have learned how to fortify its value by combining it with other procedures. Many, many persons have been enabled to walk without braces as the result of transplanting the hamstrings in place of paralyzed quadriceps, and feet have been made to function in a manner almost normal by combining transplantation with joint fixations. The performance of the operation of tendon transplantation is, *per se*, a surgical operation whose technique is not radically different from any one of those commonly in use in connection with other structures; there is, therefore, no reason why any trained surgeon can not do it well. In two regards it is, however, a highly specialized procedure which demands particular study and experience in order that the optimum shall be achieved. These concern the selection of cases and the particular procedure to be employed in the individual case and, on the other hand, the after-treatment. Proper selection of cases and procedures implies a very definite information concerning the special functions of the various muscles as well as the intricacies of the local mechanics of the part involved; information which is entirely unlikely to be in the possession of him who regards this as simply another suturing procedure in surgery. In the hand and foot the situation is one of great complication. After-care of appropriate character implies a fine understanding of the need for adjusting the load to be placed upon the transplant; it involves an exact knowledge of the terms "how much" and "when," as well as the availability of trained assistance for physiotherapy. In the absence of these, failure, either relative or absolute, will often result when this need not be, and even in the wake of operations which were technically well performed. The patient, careful and intelligent cultivation of the strength of the transplant by the physiotherapist, after

operation has been successfully done, will often be the determining factor. There can be no question that in the considerations just discussed lies the explanation for many a success and many a failure; accordingly as they were heeded, or not.

Stabilizing Procedures: Very often and, in the case of the foot, one might say most often, the power of the muscle material available for transplantation is unequal to the task of maintaining the mechanical equilibrium under weight bearing, or even the stress imposed by the unparalyzed muscles. Unless fortified by some means, the transplant will not be able to prevent distortion from taking place and the effect of the operation will be nullified. In order to prevent this, various so-called "stabilizing" operations have been used. These have as their basis the operation of "arthrodesis," devised in 1877 by Albert, of Vienna. It was his purpose to completely stiffen the paralyzed joint and he intended it chiefly for flail ankles and feet, resulting from very extensive paralysis. The operation is performed by the removal of all of the cartilage of the joint ends, in the hope that bony union between them will result. It was soon found that in young children, whose epiphyses are still largely cartilaginous, such union fails to occur; furthermore, it became evident that a completely stiff ankle and foot is a substitute of doubtful value for a flail foot, if one must use it on hilly grounds. It was then attempted to avoid these shortcomings by using the tendons of the paralyzed muscles as ligaments; they were found to stretch under use, in the lower extremity, but this operation of "tenodesis" is still of great use in the upper extremity, and especially in connection with transplantation. Stabilizing ligaments of silk were then proposed by Lange and are still used by him. In this country they have been found unsatisfactory and are little used.

In 1901, Whitman published his operation for paralytic calcaneus. This constitutes the first really effective combination of the idea of stabilizing a paralyzed joint and tendon transplantation. In this operation, the removal of the astragalus permits the foot to be displaced backwards upon the leg and a close

fibrous union takes place between the leg bones and the subjacent tarsus, the cartilage being removed from the joint surfaces; in addition, the peroneal muscles, if active, are transplanted into the paralyzed gastrocnemius (Achilles) tendon. This has been a most useful operation and it has given rise to other procedures of even more extended usefulness, notably the brilliant operation of Hoke, of Atlanta, in which the principle of arthrodesis is combined with the displacement of the center of gravity to a point nearer the center of the foot, and may be done together with tendon transplantation in greatly varying combinations. Campbell, of Memphis, has made a further and most valuable contribution to the surgery of the paralyzed foot, by creating a bony check at the back of the ankle in order to prevent foot-drop. Foot-drop resulting from paralysis of the anterior muscles in the presence of active calf muscles, without such a procedure, is most difficult to control.

I judge that the description of other combinations and variations of operative procedure will but contribute to your weariness; I have already presumed too greatly upon your kind tolerance. I trust that it has been made apparent, however, that in the lower extremity we are dealing with disturbances of a very complicated mechanism; one in which we must reckon with the intricacies of muscle mechanics involving quantities which may not be expressed in figures like those of the engineer; embracing also the factor of weight bearing and difficult problems of leverage. At the knee brilliant success may often be expected to follow transplantation of the hamstrings for paralysis of the quadriceps; but the procedure must be well planned and the case properly selected; otherwise we may find that we have given our patient a back knee or a bad knock-knee in place of what he had. In the upper extremity tendon transplantation often restores a paralyzed hand to comparative or even approximately complete usefulness. If we are here relieved from the problem of weight bearing, we are confronted with the need for comprehending the very complex muscular interplay which gives to the most maladroit human a skill which is, by itself, enough to distinguish

him from even the highest of inferior animals. From a merely technical point of view these are most difficult operations. Having been bungled, the patient is likely to have lost his one opportunity. I shall spare you the detailed discussion of the situations and solutions entailed in paralysis of the hip, the shoulder and the elbow; they, too, might furnish ground for debate as to plan of action, and it might even be interesting to show the relationship between social conditions, individual talent and economic situation and the choice of a plan of management. There are some to whom a shoulder stiffened in a useful position would constitute a boon, but there are others to whom it would mean little more than a deformity impossible to conceal.

I can not approach my conclusion without a few words devoted to the paralytic curvatures of the spine. I think that my experience will not be found greatly at variance with that of most orthopedic surgeons when I say that I have found the condition of the spinal column frequently neglected in cases of this disease; cases in which the condition of the extremities has fared much better at the hands of the medical man in charge. After all, it is the disfunction of the legs and arms which constitutes the most striking and dominant note of the situation as it is usually seen. Moreover, the spine is involved in but a minority of the cases, even though the number be greater than is usually realized. So long as the patient is still in bed, the existence of spinal involvement will be easily overlooked unless the complete muscle examination is made. This should always be done, even though it appear likely that the residual paralysis involve only a limited portion of a single extremity. This is especially important since the prevailing practice, at the present time, is to keep the patients from walking for a much longer time than was formerly the case. If the recognition of paralysis of the spinal muscles has to wait until the patient is permitted to assume the upright position, much harm will sometimes accrue which might and should have been prevented. It is unfortunately the case that by the time spinal paralysis has been recognized it has in many cases resulted in structural change which can never be made to disappear, even

though it has not yet assumed a high degree of deformity. To him who has failed to discover its existence before this time, it will be a source of chagrin to learn that this is the case; to learn, indeed, that the maintenance of the *status quo* is as much as can be hoped for under existing conditions, and that even this may call for stabilizing operations of no mean order if it is to be accomplished. The proposal to treat all paralytic scoliosis by means of operations whose purpose is to stiffen the affected portion of the spine is now accepted by many orthopedic surgeons. If not by all of them and for all cases, I think that it will have to be acknowledged that for such as concern the upper portion of the dorsal segment no acceptable substitute is at hand. Unfortunately, this is true not only as regards the improvement of that deformity which is already in evidence, but in order to prevent the further development of very great disfigurement. This will, in these unfortunate cases, otherwise take place in all probability. Mechanical control of the upper segment of the dorsal spine is not possible without apparatus sustaining the weight of the head and the continuous use of such apparatus is highly objectionable, for obvious reasons.

In not a few instances, notwithstanding that the muscles below the hip fail to explain it by their condition, the patient has a limp and a very defective gait whose origin may seem somewhat difficult to explain. The existence of an obviously lordotic posture may call attention to weakened abdominal muscles which are responsible, and they will, in this case, call for mechanical support and for gymnastic cultivation. At other times it may not appear, to such as are not greatly experienced in this field, that we are dealing with paralysis of the gluteus medius muscle and, perhaps, the closely associated gluteus minimus as well. Aside from its important function as a hip abductor, the gluteus medius is charged with stabilizing the pelvis as we pass from one leg to the other in walking. When it has become incompetent there results a waddle effect, not dissimilar to that observed in congenital luxation of the hip. Under this circumstance we are likely to observe the so-called Trendelenburg sign, just as is the case

in congenital luxation. If the patient stands on the affected, or suspected, extremity with the other hip and knee fully flexed upon the abdomen, the opposite side of the pelvis will not be raised above the horizontal, as should normally be the case. According to the degree of incapacity of the gluteus medius and minimus, it may even drop considerably below the horizontal. Should the degree of weakness be great enough to effect this, abduction of the thigh will be greatly hindered or even abolished. For such gluteal paralysis various transplantation operations may be done with success.

Decisions regarding operations are not to be made, therefore, by considering one part alone. Why stabilize a foot if the rest of the extremity is going to require the continued use of a brace which can be made to control the foot also? *Per contra*, even though it be apparent that a brace must continue to be worn, it may be desirable to operate upon the foot, nevertheless. Such operation may be necessary in order to make easier the mechanical control of the foot; it may have the effect of greatly simplifying the brace problem. Having done one or more operations with results immediately satisfactory, in varying degree, we may not, so to speak, fold our hands in contemplation of our success. These patients require to be watched for years, as a rule, and even with respect to the simpler cases. It is somewhat difficult to do this, quite often, without losing interest; these cases eventually lose their element of novelty. As time goes on both patient and parent are apt to lose their enthusiasm for the slow development of a maximum of physical efficiency. They are without the proper background which enables them to comprehend either the true nature of the task or its promise of success. Who but the experienced surgeon can render the service here called for? It is surely for him to discover that apparatus has become inadequate or inappropriate, or sometimes more happily, that it may now be discarded. If, in the desire to be properly conservative, he has delayed operation against the coming of the time when it may be expected to produce the best and most certain result, he must also be at hand to choose the most advantageous moment when

it has come. He may now be called upon to break down a contentment with the situation, or, on the other hand, a forthright opposition to further progressive effort. In the matter of vocational guidance we must be the ones who, by reason of experience and of thoughtful pondering of the problems involved, can see far ahead into our patients' lives. We must assume the role of mentor, better aware than any one else of the manner in which the personal situation is going to be influenced by the changing circumstances of body growth and the development of mind and personality. In our dual role of orthopedic surgeon and human sympathizer, we can render service of a kind to be expected of no other persons.

I shall not carry this discussion further. It has been my purpose to show, not so much the triumphs which surgery may claim for itself by operative successes in infantile paralysis, as to offer for your consideration the view that every such case, however slight in its residual and terminal effects, is entitled to serious and expert analysis if justice is to be done and many egregious errors are to be avoided. If, in the beginning, I declared it an opprobrium to our profession that these disabled persons are here, demanding our help as surgeons, then no less do I feel entitled to insist that they shall not be lightly handled and left to acquire needless deformity and loss of physical usefulness. I regret having to express the conviction that, in regard to the most of those who have had this fate, our profession may not hold itself blameless. Have we not, perhaps too often and too readily, resigned ourselves to the thought that, unfortunately, the best possible was not to be attained, because of the unfavorable circumstances? The society in which we are living is in the act of organizing itself for better things in behalf of crippled children. It is incumbent upon our profession to act a worthy part in bringing about this development, and our role in doing so is not circumscribed by the limits of our purely surgical activities. I call to mind that in this part of the world, at least, infantile paralysis constitutes much the greatest single cause of crippledom in children.

SUMMARY OF WHAT WE KNOW OF INFANTILE PARALYSIS *

By E. BENNETTE HENSON, M.D.

Charleston, West Virginia

DEFINITION: Infantile paralysis, polioencephalomyelitis, myelitis of the anterior horns, acute atrophic paralysis, essential paralysis of children, West's morning paralysis, and infantile spinal paralysis are the names applied to an acute systemic infectious disease due to a minute micro-organism characterized by a purely motor paralysis of flaccid type, occurring usually in young children, the paralysis being followed by rapidly developing atrophy with degenerative electrical reactions in the affected muscles.

At least seventy per cent of the cases do not develop paralysis at all but present a picture of an acute infectious disease beginning abruptly, usually with some fever, with slight digestive disorders and irritability; the child does not want to be nursed but prefers to lie on the bed untouched.

When the central nervous system becomes involved the first symptom complained of is pain in the back of the neck and spine. There may be headache and hypersensitiveness of the muscles of the extremities.

Lumbar puncture should be done on all suspected cases both for the prognostic and diagnostic value. If the cell count is around one hundred cells to the c. mm., paralysis may not develop; if above that number paralysis may be expected. The higher the cell count the more severe the attack.

One attack usually produces permanent protection against future attacks.

The disease is thought to be spread chiefly by human contact. The virus has been found in the excreta as well as in the nose and throat. Any age may be affected, but more often it is seen at the age of two. The colored race is rarely affected. There is an individual susceptibility to the infection which accounts for the common belief that only one member of a family will contract the disease. This is not true, for whole families have been known

to contract the disease. The disease is seasonal, usually contracted between May and November. Boys seem to be more susceptible than girls. The ratio is about six to four. The child that is large, plump, with broad, round face, is most frequently affected.

No one drug has proven of any curative value. Hexamethylenamine by mouth and adrenalin chloride in the spine have been used with some benefit. No satisfactory method of prophylaxis has been discovered. We have every reason to believe that the blood serum of a convalescent or cured patient, when injected within the first forty-eight hours of the disease into the spinal canal of the afflicted child, is of great benefit, and does no harm. The treatment by serum is the greatest boon we have, and no doubt this form of treatment will be so perfected that we will soon be able to cure all cases when early diagnosis is made. Until such time comes we shall have to treat the end results of the disease, namely, the paralyzed muscle.

Treatment is divided into three periods: (1) The period of rest; (2) the period of work; and (3) the period of reconstruction.

Treatment by Rest: The early treatment of the affected muscles should be with rest, but we should have a clear understanding of the meaning of the word *rest* as applied to treatment of these muscles. Does rest mean to place the affected limb in a plaster cast and leave it encircled in the cast, untouched for one, two, three, four, or five weeks? Does rest mean not to bathe or touch the affected muscles for weeks or months?

The pathology is chiefly that of a round cell infiltration of the perivascular tissue and the giant cells of the gray matter of the anterior horns of the cord, producing first an inflammatory state and soon thereafter degenerative changes. The anterior nerve roots and the nerves supplying the muscles show the same changes.

* Read before Kanawha Medical Society, October 11, 1927.

The atrophied muscles show a distinct diminution in the size and number of fibers, the normal tissue being replaced by fat and connective tissue.

With this pathology in mind, would it not seem rational therapy to direct our attention at once to the affected muscles and treat by keeping them warm by the use of wool or cotton and, if well tolerated, hot-water bottles or diathermy or warm bath? Keep the muscles at rest, but keep those muscles in the best of tone possible in order that they may be able to receive nerve impulses when the nerve regeneration takes place. We have no means of knowing just when the inflammatory state may subside; it may do so very promptly or it may go on to degeneration. It is important, therefore, to keep the muscles in a proper receptive state.

Very gentle massage and weak faradic or galvanic current can usually be used with benefit after the inflammatory stage, but these methods should still be classed under

Treatment by Rest.

Treatment by Work: Under this classification comes the more active measures: the application of braces, active massage, electricity, and graduated exercises. After many months comes reconstruction treatment such as tenotomy, arthodesis, transferring muscle attachment, etc. These methods are commonly used by the bone and joint surgeon and will not be discussed here.

In the past, the child of the well-to-do parents received too much treatment and the end results were very poor. The poor child who was thought to be neglected made remarkable recovery.

One thing I have noticed about a child: it will not overwork a diseased muscle, unless encouraged to do so by its parents, and, I am sorry to say, many times by the physician. Many a child on the road to complete recovery has been made a cripple for life by overzealous adults insisting on the over-use of a diseased muscle.

ACUTE POLIOMYELITIS *

By R. R. STUART, M.D.

Bluefield, West Virginia

ACUTE POLIOMYELITIS is an infectious, communicable disease resulting from the growth of a filter-passing virus in the central nervous system tissues with symptoms first of a systemic infection and then, in some cases, of those referable to the lesions of the cord and brain. It may appear in sporadic instances, or in epidemic proportions. The attention formerly given to the paralysis as the outstanding feature is now turned to the infectious nature of the disease.

In 1894 Cavesly called attention to a small group of cases having the symptoms of acute poliomyelitis but without demonstrable paralysis. Wickman later described these cases as abortive. As experience in the recognition increases the percentage of non-paralytic cases is raised. It would seem safe now to state that from 40 to 50 per cent of epidemic cases do not become paralyzed.

Prominent general symptoms revealing the

onset, especially in epidemic periods, have been accepted by most clinicians as evidence that acute poliomyelitis is at first a generalized infection which may or may not localize in the central nervous system. Draper describes a group of cases in which there was a gastro-intestinal disturbance, followed by an asymptomatic period of from three to seven days preceding the actual onset of the poliomyelitic attack. He regards the primary attack as response to the invasion of the virus. Amoss does not accept this view entirely, though he does agree that the clinical picture at the beginning of the acute infection strongly suggests a general infection. He adds, however, that such symptoms may arise from a localized infection of the meninges, as in tuberculous meningitis, and that in acute poliomyelitis stiffness of the neck reflecting meningeal irritation appears almost coincident with the general symptoms, suggesting a localized infection.

The earliest symptoms of experimental

* Read before the Mercer County Medical Society, Bluefield, W. Va., September 29, 1927.

poliomyelitis in the monkey also suggests a generalized infection, though in less degree; yet when huge doses of the virus are injected intravenously in this animal no signs appear unless the virus localizes in the central nervous system after an incubation period of from seven to twelve days, during which time the animal seems perfectly well. There is no indication from experimental studies that the virus multiplies in any tissues except the central nervous system, or provokes symptoms by its presence in the other tissues. It seems, therefore, that the general symptoms can be explained on the basis of localization of the virus in the meninges.

Etiology.—In epidemics where it may be presumed that the virus is widely distributed, the susceptibility rate is remarkably low. In the epidemic of 1916 there were 9,005 cases in New York City, where the attack rate per thousand of total population was 3.8. The rate among persons over ten years was very much lower (0.23). Eighty-three per cent were under five years. In this epidemic 97 per cent of the cases were among children under sixteen years, and three per cent among older persons. In Vermont the percentages were 90 and 10 per cent. The Norway epidemic of 1911, twenty-five per cent of the cases were in adults. Eighty per cent of the cases are seen in the first four years, the greatest incidence being in the second year. Epidemics thus far observed have occurred in the warm months; those in the United States from July to October. Four-fifths of the sporadic cases are also seen during these same months. Landsteiner and Popper in 1909 succeeded in producing the disease in a monkey by intraperitoneal inoculation with the spinal cord of a patient dying of acute poliomyelitis. They were not successful in carrying the transmission further. Flexner and Lewis, a few months later, reproduced the disease and transmitted it through a series of monkeys, using the intracranial method of inoculation. For the first few transfers large amounts of suspensions of poliomyelitic nervous tissues were required, but after three or four passages the virus becomes established so that 1/500,000 gram of nervous tissue suffices. The introduction of this minute amount into the brain of a

monkey resulted in infection, causing them to come to the conclusion that the etiological factor was a living organism and multiplies in the tissues. Microscopic examinations of poliomyelitic tissues reveal no visible microorganisms. Therefore, they classified it as a filter-passing, ultramicroscopic virus. The virus is very susceptible to drying, sunlight, hydrogen peroxid, chlorin, and mercuric chloride, but peculiarly resistant to phenol.

Rosenow and others have isolated from poliomyelitic tissue pleomorphic streptococci which in one stage resemble globoid bodies and pass through a Berkefeld filter. Bull stated, after his experiments, that none of the streptococci is capable of producing acute poliomyelitis. Amoss thinks they are secondary invaders. Rosenow states that this streptococcus tends to produce a flaccid paralysis in the rabbit, but does not produce typical poliomyelitis in the monkey, the rabbit being highly susceptible and the monkey highly resistant; whereas with the virus the conditions are reversed. He has demonstrated it in the lesions in the brain and cord, and that with it a disease resembling infantile paralysis can be produced in rabbits and guinea-pigs. With freshly isolated strains, antigens have been prepared from which, when injected intradermally in children who have not had poliomyelitis, a marked local reaction occurs, while in those who have recovered from undoubted attacks the reaction is negative or only slightly positive.

Routes of Infection.—There are three possibilities: the nasal, the gastrointestinal, and the subcutaneous or intravenous. By experiment in monkeys it has been proven that extremely large doses of the virus are required to infect by either the gastrointestinal or intravenous routes. Furthermore, the virus is very sensitive to external influences and it is difficult to conceive of its ever reaching the host in sufficient quantities to infect by food, water, or milk supply. The nasal route is now generally accepted. The detection of the virus in nasal washings during the incubation period, the ease of infection in the monkey, all point toward this atrium of infection. It appears, then, that the virus is propagated in the central nervous system tissues of the host, does not survive the ex-

ternal conditions but by chance it is transferred directly or indirectly from nasal mucosa of the host to the nasal mucosa of the susceptible new host, and it seems probable that the virus goes directly through the nasal mucosa to the olfactory lobes by means of the perineural lymph spaces, and not first into the circulation and then in the meninges.

Symptoms.—Few diseases have a more diversified clinical picture than acute poliomyelitis, no two cases being exactly alike in symptoms and progress. This can be readily understood by keeping the pathological findings in mind. The symptoms depend upon the virulence of the infection, the age, and upon the part of the nervous system involved. There has been considerable discussion on the classification of clinical types; three general groups, however, are usually recognized. First is the abortive or non-paralytic. These are not recognized at all or a presumptive diagnosis is made when members of a family or a community, during an epidemic, suffer from some characteristic prodromal symptoms. The spinal type is the most characteristic form of the disease. The onset is usually abrupt, a previously healthy child seems out of sorts and listless, with loss of appetite; the symptoms differing little from those seen in other acute infections. In infants vomiting and diarrhea may usher in the attack, and the mother is prone to ascribe the upset to a dietary indiscretion. Constipation is more often present than diarrhea. The temperature range is usually between 101 and 103 and endures for a variable period, from a few hours to three or four days, and rapidly returns to normal. Drowsiness, irritability, headache, and prostration are seen in most cases. The sclera and cornea are usually glazed. Some redness or injection of the tonsils or pharynx is observed in practically every case, and persists for one or two weeks, varying in intensity from a mild redness to a severe angina, the hyperemic area extending up into the naso-pharynx, where a grayish white exudate is almost always present. The febrile period may come and pass unobserved and the only history obtainable may be that of the wakeful and fretful child. It is this type of case in which the child, having passed through an unrecognized

brief acute attack, gets up a day or two later with a group paralysis. Usually, however, after the first day more definite symptoms, indicating involvement of the nervous system, are present. Besides the headache, which may be severe, the patient often complains of pain in the neck or between the shoulders or in the back, the pain being accentuated on stretching the neck. Pains in the legs, hips or arms may appear suddenly. Groups of muscles may be very sensitive to pressure or passive movement. Exquisite hyperesthesia of the skin is seen in about half the cases. General profuse or local areas of sweating on the head or back of neck or an arm or leg appear in some cases. Flushing of the skin or, more often, blanching of an arm or leg is often precursor of paralysis of that member. The blood shows a moderate polymorphonuclear leukocytosis. Retention of urine and stools are common. The spinal fluid is usually clear, but may be slightly turbid; usually the pressure is moderately increased. The spinal cell count is higher than normal during the height of the prodromes and in the first week of paralysis. The average count is forty to eighty, but counts of 400 to 500 are not uncommon. At first they are chiefly polys, but very soon nearly all are lymphocytes. Globulin usually shows a slight increase on the second day, and gradually increases each day for several days and persists after the cells have disappeared. The reduction of Fehling's solution is normal.

The Paralytic Stage.—Loss of power may come on quickly, in a few hours; more often, rather, gradually, and may extend from two to three days before it is developed. It is nearly always true that the initial is the final paralysis, and, once begun, the final stage of paralysis is soon reached. In a small number of cases there is a successive involvement, first of the lower extremities, then of higher groups, until the respiratory center is involved and death results. This is the ascending or Landry's type. Over 60 per cent of the paralysis appears within three days after onset, and 26 per cent appears in 4 to 7 days. The palsies observed are of wide variety. In cases of spinal palsies the pain on passive motion and the general hyperesthetic state become emphasized; cases displaying paraly-

sis of the cranial nerves develop an increasing dullness of the sensorium. A flaccid paralysis with loss of deep tendon reflexes is the type of muscular disability characteristically seen in the extremities, although an occasional, usually transient, spastic paralysis with exaggerated reflexes may be observed in the lower extremities. The other nervous symptoms usually continue. The posture is usually dorsal, with limbs semi-flexed. In some cases where there is marked meningeal irritation, there is a general flexion of the body with opisthotonos. The knee jerks may at first be increased but are soon lost on the affected side. The mind is usually clear. Certain cases show more marked cerebral symptoms, chiefly stupor, with few spinal symptoms. After the usual onset, the drowsiness soon develops into deep stupor, and may last for a week or more, with the continuance of the fever and stiffness of the neck. The paralysis, when it occurs, indicates an involvement of the cord at a higher level and affects, besides other parts, one or both arms.

The Bulbo-Spinal Type.—The onset and symptoms are the same as in the severe spinal type, and only after the paralysis develops are the characteristic symptoms seen. This group forms about six per cent of epidemic cases. The symptoms of bulbar paralysis are nearly always limited to one side. Almost any of the cranial nerves may be involved, the facial being the most frequent. The facial paralysis is usually transient. Ocular paralyses are next in frequency, the external rectus being most often affected. Disturbances of speech are not infrequent, but rarely persist. Disturbances of deglutition, and hypoglossal paralysis, are occasionally seen. These cases form the most severe and fatal types, and furnish most of the deaths. The fatal result is usually from respiratory paralysis or broncho-pneumonia.

Distribution of paralysis show the largest proportion affecting one or both legs; next is combination of arms and legs, then various other combinations.

Diagnosis.—That acute poliomyelitis is a systemic infection has practically become established. Too much stress can not be placed upon the importance of early recognition. Until the past few years, the diag-

nosis of poliomyelitis rested almost entirely on the occurrence of the paralysis, and even now the diagnosis is too frequently dependent on this complication. Clinical and experimental studies have shown that the paralysis is preceded by a stage of central nervous system invasion which, in turn, follows a period of systemic infection. In epidemic periods a child with a gastrointestinal upset, headache and fever, less alert and bright than with an ordinary fever, cranky and unapproachable, should be examined more carefully with the possibility of acute poliomyelitis in mind. The chest and abdomen should be observed carefully to note any intercostal or diaphragmatic paralysis, and the reflexes tested. If there is no involvement of the respiratory center, the patient should sit on the side of the bed. In early poliomyelitis the patient assumes a characteristic attitude. The back is held straight and both hands rest on the bed slightly behind the buttocks with arms straight in an attempt to take the strain from the painful back. When the patient is asked to bend over and place the head between the knees, the back is held straight and the patient bends only from the hips. This is one of the most constant signs in acute poliomyelitis. Additional evidence of the tender spine is obtained in manipulation for Kernig's sign, the response to which is not a true reflex. In an attempt to bring the chin to the chest by anterior flexion of the neck, in nearly every case the neck is resistant and manipulation causes pain. Very few cases are seen in which in the early stage the neck is not stiff. The neck and back signs may be regarded as a constant symptom, and their presence in a child with an acute onset without discoverable cause suggests inflammation of the meninges, and spinal fluid should be withdrawn.

In the differential diagnosis the conditions presenting the most difficulties are tuberculous meningitis, epidemic meningitis, and epidemic encephalitis. In tuberculous meningitis the history and onset are usually different; the cell count of the spinal fluid may be the same, but in tuberculous meningitis the excess of globulin appears early in the disease, and the tubercular bacillus may be found. In epidemic meningitis, in the first few hours the cell count may be well within

the upper limits of the numbers found in acute poliomyelitis, but the globulin tests show a much heavier precipitate than that which occurs at this stage in acute poliomyelitis; then, too, the organism may be found.

Epidemic encephalitis, without localizing signs, and the encephalitic form of acute poliomyelitis may simulate each another so closely as to present a very difficult problem in diagnosis, especially in the early stages. The diffuseness of the lesions and exaggeration of the stupor and clouded mentality point toward epidemic encephalitis. The spinal fluid in epidemic encephalitis is abnormal in only about fifty per cent of the cases, and the cell count is not usually as high as is generally found in the encephalitic type of poliomyelitis. In epidemics of either poliomyelitis or encephalitis it is usually safe to assume that the case belongs to the existing epidemic.

Prognosis.—The dangers from poliomyelitis are twofold: that to life during the acute stage, and that to muscle in the form of permanent paralysis and disability. The mortality in the 1916 epidemic in New York City was 27 per cent. The highest mortality was observed among children under one year, 43 per cent. Among all cases under five and those under ten years, the mortality was practically the same (27 per cent), and among those over ten years it was 31 per cent. The mortality among sporadic cases is very much less; it is always highest in adults. Reports of epidemics since 1916 show that the mortality is much less. Rosenow reported 259 cases in Davenport and Dubuque with a mortality of 7.3 per cent. In general, residual paralysis may be expected in 25 to 40 per cent of all cases. In individual cases, a prognosis can not be made until the febrile period has passed. It is impossible to say in any case of advancing paralysis when it will be arrested. It rarely spreads after the seventh day. Muscles which soon lose completely their faradic contractility are almost certain to waste rapidly and severely. The best indication of coming improvement is the return of faradic contractility. If this is completely lost for six months, recovery is doubtful; if faradic contractility is not lost, great and early improvement in the paralyzed muscles may be confidently predicted. After twelve

months but little spontaneous improvement is to be looked for, and after two or three years none at all. The question of functional recovery depends upon how carefully treatment is carried out. Lovett and Martin show that the chance of functional recovery are as six to one when the cases are followed by proper muscle training under expert guidance. Where the training was done at home the improvement was 3.5 to 1. Where muscle training was carried out for two months, there was improvement in 48 per cent of the cases. Where there was no treatment, 27 per cent registered improvement. Many observers believe that the number of cells present in the spinal fluid during the first twenty-four hours is of prognostic significance. Cases in which the count is under 100 rarely develop paralysis, while from 200 to 500 cells forebode paralysis, and in those in which the count is from 700 to 1,000 cells the prognosis for life is unfavorable. There are notable exceptions to this rule, however.

Treatment.—Romer and Josephs, in 1910, showed that immune bodies are present in the blood of recovered patients. Flexner and Lewis demonstrated that the injection of such serum delays and may prevent altogether the development of paralysis in monkeys previously inoculated with the virus. Serum from recently recovered patients is recommended, as it is presumed to have a greater antibody content; and since at best only weakly immune serum is available, correspondingly larger amounts of serum must be given. Draper recommends 15 c.c. intraspinally, with 150 or 200 c.c. intravenously in the course of from twelve to twenty-four hours. He emphasizes that the serum is of no value if paralysis has already appeared. Zingher, in 1917, reported the use of convalescent serum in 54 cases, ten of which developed paralysis; six of 14 treated by Amoss and Chesney developed paralysis and two died. Sixteen of 51 in Peabody's series developed paralysis and five died. Of a total of 119 cases treated in the preparalytic stage, 26.8 developed paralysis and 5.8 died. Amoss, in 1921, stated that "a definite and enduring immunity is established by an acute attack of poliomyelitis, both in the human being and in the experimentally infected monkey, and

in both instances the convalescent serum contained substances neutralizing the poliomyelitis virus."

In 1917 Rosenow reported good results in the treatment of acute poliomyelitis with an immune horse serum prepared by repeated injection of the pleomorphic streptococcus from acute cases of poliomyelitis. Two hundred and fifty-nine patients were treated; 19 died—a mortality of 7.3 per cent. Thirty-seven, or 21 per cent, had residual paralysis. In the untreated (same epidemic), 72 patients had the disease; 25 per cent died of respiratory paralysis. The final outcome in 25 of the untreated was determined, and of these 14 (56 per cent) had varying degrees of residual paralysis. In January, 1927, he reports 1,133 cases observed over a period of five years, treated with this serum with a mortality of 14.4 per cent. A control group of 278 cases, with a mortality of 29.5 per cent, was also reported. The incidence of residual paralysis was also much lower in the treated than in the control group, especially in the patients who receive serum before or soon after slight paralysis had developed.

General Treatment.—Absolute rest, even in the mildest cases, should be had for a period of two weeks at least and longer if any symptoms are present. Restlessness, headache and pain are frequently relieved by repeated lumbar puncture until the pressure is normal, and some believe that this procedure may have some influence upon the spread of the

disease. Pains in the affected limbs may be lessened by splints and wrapping in cotton to immobilize. It is important to support the limbs, so as to lessen the chance of deformity. Pads or sandbags at the feet to prevent foot-drop, a roll under the knees to relieve tension on the hamstrings. Other treatment is entirely symptomatic during the acute stage. Massage and passive movement may be begun three or four weeks after the acute stage if hyperesthesia has disappeared, at first once daily, then twice daily, to all affected parts. Under intelligent supervision such measures give surprising results and many deformities can be prevented.

CONCLUSIONS

The most hopeful available treatment is that by the antistreptococci serum as advocated by Rosenow, to be used either intravenously or intramuscularly. It does no harm if the usual precautions are taken regarding hypersensitiveness to horse serum protein, other than serum sickness, which occurs in about 50 per cent of the cases. The number and variety of patients treated seem adequate to at least justify the trial of this serum.

This, and lumbar puncture daily until the pressure is normal, together with general symptomatic treatment, seems to be the most promising treatment at this time.

REFERENCES

- Tice's Practice.
Holt & Howland.
Rosenow, Amer. Journal Diseases of Children, January, 1927.
Lucas, "Modern Practice of Pediatrics."
Pediatrics, Feer.

METHODS FOR THE CONTROL OF SCARLET FEVER *

By GEORGE F. DICK, M.D.
Chicago, Illinois

SCARLET FEVER is probably one of the oldest known diseases. The earliest medical manuscripts contain descriptions of acute diseases accompanied by rashes. At first the various rashes were confused. On account of its characteristic pustular lesions, smallpox was soon differentiated from the other exanthamata. But the confusion between measles

and scarlet fever persisted until the seventeenth century, when Sydenham clearly differentiated scarlet fever from measles.

After the development of Jenner's vaccination against smallpox, attempts were made to employ a similar method of vaccination against scarlet fever, on the assumption that the organism which caused the disease would be present in the skin of the scarlet-fever patient. These attempts at vaccination

* Read before the Central Tri-State Medical Society at Huntington on April 19, 1928.

against scarlet fever by means of skin scales were not successful, and the knowledge of scarlet fever was at a standstill during the next hundred years, until the development of the science of bacteriology revealed the presence of a variety of organisms associated with scarlet fever, predominant among which were streptococci and chiefly the hemolytic streptococcus. But similar organisms were also demonstrated in various other diseases, such as puerperal sepsis, erysipelas, and lymphangitis. There was no way of differentiating these various streptococci and no one succeeded in establishing the streptococcus as the cause of scarlet fever. It became generally accepted that this disease must be due to a filterable virus, but it was not possible to prove this theory, and, during the next fifty years, there was another pause in progress until, as the result of work published in 1923, which included the production of experimental scarlet fever in human beings, we were able to demonstrate that a specific hemolytic streptococcus is the cause of scarlet fever. In most cases this streptococcus does not invade the blood stream, but remains localized in the throat, where it causes the angina, and, in addition, produces a toxin which is absorbed into the blood and carried to all parts of the body.

We were able to demonstrate that this toxin is responsible for the characteristic symptoms of scarlet fever, including the nausea, vomiting, fever, and rash. By injecting comparatively large doses of the sterile toxin, we succeeded in reproducing these symptoms in susceptible human beings.

The discovery of the specific toxin of scarlet fever enabled us to develop:

First: A skin test to determine which individuals are susceptible to scarlet fever, and which are immune.

Second: A method of immunizing the susceptible individuals against scarlet fever so that they do not contract the disease on exposure.

Third: An antitoxin specific for scarlet fever, and,

Fourth: A method of recognizing scarlet fever streptococci.

These four applications of the specific

toxin furnish the means of controlling scarlet fever.

The skin test to determine susceptibility is made by injecting intradermally 1/10 cubic centimeter of a dilute solution of scarlet fever toxin. The injection should be made on the anterior surface of the forearm, at the junction of the upper and middle thirds. The test is observed twenty to twenty-four hours after it is made. The observation should be made in a bright light. An area of reddening one centimeter or over, in any diameter, constitutes a positive reaction and indicates some degree of susceptibility to scarlet fever. The positive reaction to scarlet fever toxin differs from the positive Schick test in being more transient and showing no induration. The Schick test for susceptibility to diphtheria may be observed two to four days after the test is made, but reactions to scarlet fever toxin have usually disappeared in thirty to forty-eight hours, so that results of observations made more than twenty-four hours after the skin dose of scarlet fever toxin is injected would not be reliable. On the other hand, the test should not be observed too soon—not earlier than twenty hours. The positive reaction to scarlet fever toxin may vary from a very faint, pinkish flush to an intense red, according to the degree of susceptibility of the individual. It may range from one to five centimeters in diameter. The most strongly positive reactions are usually accompanied by slight superficial swelling, without any induration. We have been impressed with the number of positive skin tests that have been interpreted as negative, especially by physicians accustomed to making Schick tests. It is almost the usual thing for slightly positive reactions to be regarded as negative by those who have not had considerable experience with skin tests for susceptibility to scarlet fever.

If the skin test solution is properly prepared it is not necessary nor advisable to use a control, for pseudo reactions are uncommon.

It was pointed out in our earlier publications that the skin test was devised as a means of determining susceptibility to scarlet fever and that it is not a diagnostic procedure. Subsequent experience has shown

that this view is correct, but, in spite of the warning, some observers have attempted to employ the skin test for the diagnosis of scarlet fever. This is a mistake, for, while it is true that the skin test is positive before an attack of scarlet fever and usually negative after the attack, it may become negative in the first forty-eight hours of the disease, before the full development of the rash, and, in rare cases, the skin test is modified, but still positive after an attack of scarlet fever.

While the use of the skin test with the toxin should be limited to the determination of susceptibility to scarlet fever, the blanching test, with scarlet fever antitoxin, which will be described later, is helpful in the diagnosis of suspected rashes.

Correctly made and interpreted, with accurately standardized and properly prepared material, the skin test has proved a reliable means of determining susceptibility to scarlet fever.

The number of susceptible individuals in any group will vary, according to age and previous exposures to scarlet fever. In crowded city schools or institutions, the number susceptible may be as low as 15%. In less crowded districts, or in younger age groups, more than 60% may be found susceptible. Many cases of scarlet fever are so mild that they are not diagnosed clinically. This probably accounts for the immunity in those persons who give no history of scarlet fever but have negative skin tests.

In a series of 30,000 skin tests, including all ages, 40% were positive and 60% negative. No case of scarlet fever occurred in persons with negative tests, and 48 cases have been observed in persons who had shown positive skin tests before exposure to scarlet fever.

Persons who are susceptible to scarlet fever may be immunized by means of subcutaneous injections of graduated doses of sterile scarlet fever toxin. It is important that the toxin for immunization be properly prepared, so that it contains a minimum amount of foreign protein and no horse serum or other animal serum. The dosage should be correctly graduated, so as to give no harmful reactions, yet confer adequate immunity.

We are at present advising the use of the following dosage, which we have found safe and effective:

A first dose of 500 skin test doses of toxin.

A second dose of 2,000 skin test doses.

A third dose of 8,000 skin test doses.

A fourth dose of 25,000 skin test doses.

A fifth dose of 80,000 skin test doses.

Given subcutaneously at intervals of five to seven days.

This dosage may be counted on to immunize more than 90% of susceptible persons to the point of an entirely negative skin test and modify the susceptibility of the remainder.

It should be emphasized that unless the immunization is carried to the point of an entirely negative skin test, complete protection from scarlet fever can not be expected, though the severity of any subsequent attack would be modified by the partial immunization.

Two weeks after the last immunizing dose of toxin is given, another skin test should be made. If it is not entirely negative, the last immunizing dose should be repeated.

In a series of 6,000 susceptible persons immunized with the dosage mentioned, no harmful reactions have occurred.

There is practically always some local reaction about the site of injection in the upper arm. This consists of reddening, with more or less swelling, which begins to subside in forty-eight hours. No necrosis, abscesses or sloughs have occurred.

There may or may not be a general reaction, depending on the degree of susceptibility of the person being immunized. The most severe general reactions which occur consist of general malaise and nausea accompanied by a rise in temperature. These symptoms may appear within a few hours, and usually subside the following day. There may be a light, scarlatinal rash, which disappears in forty-eight hours. Such reactions are not common and do not follow all doses, even in highly susceptible individuals. General reactions are most likely to occur after the first, second or third dose. By the time the large doses are reached, enough immunity has been acquired to prevent reactions. As a rule the reactions which occur during the course of immunization against scarlet fever

are about as severe as those which follow the use of typhoid vaccine or diphtheria toxin antitoxin mixtures.

While it is not possible at present to give statistics on the duration of the active immunity resulting from administration of these graduated doses of toxin, experience to date indicates that the immunity obtained is comparable in duration to that obtained with immunization against diphtheria, with proper use of diphtheria toxin-antitoxin mixtures. It is considerably more satisfactory than immunity obtained with some commercial preparations of diphtheria toxin-antitoxin now on the market.

Scarlet fever antitoxin is obtained by immunizing horses with gradually increasing doses of sterile scarlet fever toxin injected subcutaneously. When the horse is producing a good antitoxin he is bled and the serum is separated and refined by the methods employed for refining and concentrating diphtheria antitoxin. This process removes unnecessary foreign proteins, so that the resulting antitoxin causes fewer and less severe reactions and is of higher potency.

The finished antitoxin is standardized against the toxin and its potency is expressed in the number of skin test doses of toxin neutralized by one cubic centimeter of antitoxin. The therapeutic dose of antitoxin should be about three hundred thousand of these neutralizing units, and the prophylactic dose should contain about one hundred thousand neutralizing units. No satisfactory method of standardizing the antitoxin has been found that does not involve the use of skin tests in human beings. Some observers claimed that goats could be used for this purpose, but they are not suitable and serums standardized on goats have been found unreliable. On account of the difficulty of standardization, it has not been possible for the Hygienic Laboratory of the United States Public Health Service to check the claims of the manufacturers; consequently, there are several preparations of scarlet fever antitoxin on the market which bear on their labels grossly exaggerated claims for potency. Some of these antitoxins are labeled as containing 50,000 or 60,000 neutralizing units per cubic centimeter. When tested they are

sometimes found to have less than 10% of the potency claimed.

We have tested no antitoxin containing even forty thousand neutralizing units per cubic centimeter.

The most potent antitoxin yet obtained contains 35,000 neutralizing units per cubic centimeter. If an antitoxin actually contains as much as 30,000 neutralizing units, ten cubic centimeters, or 300,000 units, is an adequate therapeutic dose.

It has been shown that properly standardized scarlet fever antitoxin, given in sufficient dosage early in the disease, shortens the course of scarlet fever and reduces the frequency and severity of complications. In order to be most effective, the antitoxin should be given as soon as the rash begins to appear. With every day of delay in administering the antitoxin there is a diminution in the benefit derived from it. If the antitoxin is withheld until late in the disease, the tissues of the body may be damaged past repair.

There is considerable variation in the severity of scarlet fever. There are mild forms in which the chief object in giving antitoxin is to reduce the chance of complications to a minimum. From the mild forms there are all possible gradations to the fulminating toxic type, in which the patient succumbs in a few days to the toxemia.

The therapeutic dose of antitoxin adopted by The Scarlet Fever Committee, and put out by manufacturers licensed by the committee, is adequate for the ordinary mild to moderately severe case of scarlet fever. Within 12 to 18 hours after the antitoxin is given in an early case, there is an improvement in the general condition of the patient; the temperature falls and the rash begins to fade. In more severe cases, especially in those complicated by sinus infections, it is sometimes necessary to give a second therapeutic dose of antitoxin 18 to 24 hours after the first dose.

In extremely toxic cases, with high temperature and delirium, it is advisable to give two therapeutic doses at once.

Occasionally one sees cases of scarlet fever of several days' duration in which septicemia has developed and the tissues are injured to

such an extent that no method of treatment can be expected to effect a cure.

In these cases there is usually a marked reduction in the amount of urine, or anuria. An effort should be made to administer antitoxin early enough to prevent the development of such conditions.

In doubtful rashes, the diagnosis may frequently be established by injecting 2/10 of a cubic centimeter of scarlet fever antitoxin intradermally, in an area where the rash is brightest. The result is observed in 18 to 24 hours. If the site of injection is surrounded by a zone in which the rash is blanched, it may be concluded that the rash is that of scarlet fever; since the blanching is due to the neutralization of the scarlet fever toxin by the antitoxin in the locality of the injection. These blanching tests are sometimes difficult to see, especially if the rash is two or three days old. It is best to stand some distance from the patient in making the observation.

In case there is an increased redness at the immediate site of injection, due to irritation from the serum or preservative contained in it, it is often possible to see a zone of blanching surrounding the central red spot.

The disease most commonly confused with scarlet fever is German measles. Since the rash of German measles is not blanched by scarlet fever antitoxin, the blanching test furnishes a means of differential diagnosis between the two diseases.

Besides its use in the treatment of scarlet fever and in the diagnostic blanching test, scarlet fever antitoxin is given in prophylactic doses to prevent the development of scarlet fever in susceptible persons who have been recently exposed to the disease.

If possible, it is best to make nose and throat cultures on blood agar plates, and examine them for hemolytic streptococci before giving the prophylactic dose of antitoxin. Comparatively few of the contacts contract scarlet fever on any single exposure. This is due to the fact that some of the contacts are not susceptible to scarlet fever and that those who are susceptible may not become infected. If a person is not susceptible, or if he is susceptible but not infected, he does not need antitoxin.

In case the skin test is positive, indicating susceptibility to scarlet fever, and the nose or throat culture is positive for hemolytic streptococci, the prophylactic administration of scarlet fever antitoxin is justified. It should be kept in mind that protection with the antitoxin is an emergency measure which affords only temporary immunity.

As soon as the antitoxin is eliminated from the body, the patient again becomes susceptible to scarlet fever and may contract the disease on a subsequent exposure. The protection conferred by a prophylactic dose of antitoxin can not be expected to last more than ten days to two weeks. It should be followed by active immunization with the toxin, which results in more lasting protection.

In making nose and throat cultures for hemolytic streptococci, the question will naturally arise as to whether the hemolytic streptococci found are scarlet fever streptococci or some other, and non-specific hemolytic streptococci.

The differentiation of scarlet fever streptococci is accomplished by testing the organisms in question for specific toxin production.

This is done by culturing the organism in plain broth to which a small amount of sterile human blood has been added. The broth culture is incubated from two to four days, filtered through a Berkefeld "W" filter to remove the bacteria, and the sterile filtrate is tested for the presence of scarlet fever toxin. This procedure requires about the same time and facilities that are needed in testing diphtheria cultures for virulence. It is, therefore, impractical for those who do not have rather extensive laboratory facilities, and it may be left to the Health Department Laboratories.

Fortunately, this test for specificity is not necessary in the majority of instances. It is required only in cases of persistent carriers and under conditions similar to those that necessitate tests for virulence of diphtheria bacilli.

The methods employed to prevent scarlet fever in families, institutions or communities differ, according to whether or not scarlet fever is epidemic at the time. It is simpler to test and immunize during the summer months, when scarlet fever is not prevalent,

than in the winter when exposure to scarlet fever may complicate the situation.

If scarlet fever is not present in a community, it is only necessary to make skin tests and immunize those who show positive skin reactions with graduated doses of the toxin.

If scarlet fever is present in the community or institution at the time control of the disease is undertaken, the situation is more complicated. The first thing to be done is to make skin tests on every one, and at the same time make nose and throat cultures on blood agar plates.

The cultures are incubated over night and examined in the morning for hemolytic streptococci. Those concerned are divided into infected and non-infected groups, according to whether or not hemolytic streptococci are found in their cultures. It is not necessary to test these cultures for specificity. The skin tests are observed at the end of twenty to twenty-four hours. It will be found that the infected group contains a number of persons who are immune to scarlet fever, as demonstrated by negative skin tests. On account of this immunity, they will not contract scarlet fever themselves, but should be quarantined as immune carriers who might infect others. They do not require any treatment and may be released from quarantine after all the susceptibles have been immunized.

The infected group will also contain some who have positive skin tests and are therefore known to be susceptible to scarlet fever. These susceptible and infected persons are in danger of developing scarlet fever. They may be given prophylactic doses of antitoxin at once or they may be watched closely and given a therapeutic dose of antitoxin on the first appearance of sore throat, malaise or fever.

In the non-infected group there will be some with negative skin tests who do not require any further attention, except to be kept from contact with the infected group. The reason for this is that on such contact they might be infected and become immune carriers.

The non-infected group will also contain a number of persons with positive skin tests indicating susceptibility to scarlet fever. In

these, active immunization with the graduated doses of toxin may be begun at once.

The quarantine between infected and non-infected groups should be maintained until immunization of the susceptibles has been completed. One week after the work is started immunization of the susceptibles in the infected group may be begun, regardless of whether they have had antitoxin or not.

Cultures are taken once a week in the infected group, and as they become negative the individuals concerned are transferred to the non-infected group.

Is it not worth while to take cultures oftener than once a week.

After the fifth immunizing dose of toxin has been given in the non-infected group, the quarantine may be raised on the infected group and the two groups may be permitted to mingle.

Retests are made two weeks after the last immunizing dose of toxin and extra doses are given where indicated.

If it is not possible to obtain cultures on blood agar plates the control of an epidemic of scarlet fever is more difficult. Skin tests are made and the persons tested are divided into two groups, according to whether or not they are shown to be susceptible. Daily observations of the susceptible group are necessary, with administration of prophylactic antitoxin on the appearance of symptoms of sore throat, fever or malaise. Active immunization is begun at once in the susceptible group. Since it is not possible without cultures to isolate the carriers, the susceptible persons are in danger of becoming infected and contracting the disease until their immunization has been completed.

An epidemic of scarlet fever can not be controlled by the use of prophylactic doses of antitoxin alone because, as already pointed out, the antitoxin protects for only ten days to two weeks, which is not sufficient time for the infected carriers to get rid of the organisms.

It is important in any family or institution to obtain cultures on all possible contacts—the help, visitors, janitor, cooks, waitresses, etc., as well as the immediate group seeking protection, for one unrecognized carrier may frustrate the most elaborate attempts to control an epidemic. There have been several

such instances in our experience, as where a Christian Scientist employed is some capacity about an institution, or a teacher or a cook, refused to have a culture taken.

Later, when cases of scarlet fever continued to occur in the non-infected group, and these objectors were given the choice of dismissal or culture, they were found infected, and the new cases of scarlet fever were traced to direct contact with them. On account of these experiences, we now insist that any one who refuses culture be placed under quarantine in the infected group.

We have employed the methods of control outlined here during the past three years in private families, schools and institutions. The results are now available from a series of approximately fifteen thousand persons directly exposed to scarlet fever immediately before or after testing and immunization. In this series, no case of scarlet fever has occurred in a person with a negative skin test, nor has any case of scarlet fever occurred in persons with positive skin tests who had been immunized with graduated doses of toxin to the point of a negative skin test. On the other hand, in the control series where susceptible persons refused immunization or the ricinoleated preparations of toxin or so-called ricinoleated antigen were used, a number of cases of scarlet fever occurred following exposure.

It has been demonstrated that by the use of skin tests, active immunization, passive immunization and quarantine based on nose and throat cultures, an epidemic of scarlet fever can be controlled within forty-eight hours.

Scarlet fever has been eliminated from the nursing and interne staffs of contagious-disease hospitals by regulations which require that prospective nurses and internes report for tests and immunization before beginning duty in the hospital.

A word in regard to commercial preparations of scarlet fever toxin seems appropriate here. There are some ricinoleated preparations of scarlet fever toxin, described by Larson, on the market, which it is claimed will immunize against scarlet fever in one or two doses. It is also claimed that these preparations are detoxified and will not cause reactions. Tests have shown that these preparations are not detoxified. Most of them contain from one to three thousand skin-test doses of toxin per cubic centimeter. This amount is too large to be safe for a first dose and considerably too small to confer a satisfactory immunity. Experience during the past winter in institutions where these preparations were used has shown that the claims as to detoxification and immunization are unjustified. Institutions came under our observation where attempts had been made to control scarlet fever by the use of a commercial preparation of ricinoleated toxin. Skin tests made on these groups indicated that they had not been successfully protected against scarlet fever. This conclusion was substantiated by the occurrence of scarlet fever in individuals who had received the ricinoleated antigen.

For the present, at least, it is best to employ the five graduated doses of toxin in active immunization against scarlet fever.

SURGICAL LIMITATIONS WITHIN THE ABDOMEN *

By WADE H. ST. CLAIR, M.D.

Bluefield, West Virginia

I DESIRE first of all to express to the president of this association my sincere appreciation of the signal honor of appearing on this part of the program. Fully receptive to the honor and the great privilege, as any member of this organization would be, the

idea nevertheless of speaking for my associates in surgery conveys to me a kind of service for which any effort of mine I must plead as being greatly inadequate.

In casting about for a subject for an occasion like this, one encounters a first difficulty in choosing a topic which is entirely appropriate. A specific subject dealing with a

* Oration on Surgery, delivered before the sixtieth annual meeting of the West Virginia State Medical Association at White Sulphur Springs, W. Va., Tuesday, June 21, 1927.

single phase of surgical effort would seem certainly not in place, and something which considers some trend of endeavor would be more logically expected. To review the accomplishments of one's profession is good taste, but in this there is always the risk of a hackneyed subject. Hospitals in which surgical practice has become a commonplace part of the day's work are accessible now to every community, and the public has had an adequate opportunity of being fully aware of achievements. With the rapid advance of surgery in all its phases and with the ease and comparative safety with which operations even of a major sort are performed, it is a question if the remarkable enthusiasm which has gone apace with so much progress should not be tempered by a critical investigation of what is real and what is fancy in the main problem of serving the best interest of the patient. I have considered it worth while, therefore, to speak of certain limitations rather than to recite at this time more achievement. My own work gives me a chief interest in abdominal surgery, and in the natural choice of speaking of surgical limitations within the abdomen I do not mean to convey the idea that the abdomen has been the sole source of exploitation, for what applies in this particular field may and usually does apply, in varying degrees, to surgery directed elsewhere. Pathological conditions, real or fancied, provoke here surgical intervention oftener than elsewhere, and the possibilities for exploitation are obviously many. Likewise, in no way would I want to create the impression of being a pessimist and doubting the sound wisdom of surgical intervention where there is actual provocation, and in attempting to draw the line of limit I shall have many occasions to speak freely of those things in which surgery is a positive indication both as a life-saving measure and as the best means of relieving suffering and restoring health.

In making a survey, then, of those conditions within the abdomen for which surgery is directed as a curative measure, both for the surgeon and in the appreciation of the lay mind appendicitis is easily of first importance. The acute case, allowing always for rare instances in which the clinical pic-

ture is obscure, is usually typical, and surgery applied reasonably early represents one of the most satisfactory conquests of disease. In the outspoken attack, the question of surgical limitation could hardly obtain, and we are more concerned with adequate operative technique and a diagnostic sense which brings the case to operation early and does not wait for severe secondary disease.

Acute appendicitis is obviously not always fulminating, and it is a common observation that infections within the appendix, often of appreciable severity, frequently undergo resolution with every indication of a return to normal for the time being. Frequently there is a history of several such attacks in an individual, and in the interval the patient may be entirely free of symptoms or may complain of pain of varying intensity and constancy and suffer from digestive disturbances which apparently have no other origin. In such cases operation is a definite indication, whether performed in an acute attack or in an interval to anticipate a subsequent attack, or for the relief, as well, of digestive disturbance. In the interval the appendix may or may not show palpable pathology, but in well-chosen cases where diagnostic study is painstaking and conclusions are not hasty and haphazard these patients are relieved of their symptoms and a useless operation is certainly the exception.

There is a third class of cases in which the differentiation of disease is not so clear, but in which surgery is often applied. Some of these patients complain only of right-sided pain and others of digestive disturbances alone. In none of them can a clear-cut history of an acute attack of appendicitis be developed. It is possible, undoubtedly, that the pain rarely may have its origin in the appendix, but the same pain may as easily have its source in pathology of the urinary tract, or may be the expression of many other things for which surgery is not an indication. Ordinarily these people are nervous, and the pain actually may be insignificant and exaggerated to the proportion of being surgical by the neurotic state of the individual. Digestive disturbances may be entirely functional or dependent upon some condition for which removal of the appendix has no effect one

way or the other. But because the operation is easy and because the patient, usually possessing a bent for operation, knows that no serious danger is entailed, surgery is often resorted to, frequently without a serious effort to ascertain actually just what is wrong with the patient. It is extremely rare that the excised appendix is reported normal, and the case goes into the hospital records under the doubtful designation of chronic appendicitis. The appendix is often enveloped from base to tip in a fold of peritoneum, and this knowledge is imparted to the patient; but the patient may have been born with such an appendix and it is doubtful if the situation represents real pathology. The surgeon's dilemma is made less difficult by finding a Jackson's membrane or a Treves' band, and a surgical conscience is eased by the fact that an abdominal exploration was at least possible and no other pathology was found. The patient is rarely told that the appendix was as normal as any other structure. The subject operated on has had an experience and a rest of two weeks in bed and is obviously improved for the time being. In the vast majority of such cases surgery has been resorted to beyond a logical indication, because clinical evidence of a diseased appendix has been insufficient and because of the most important factor of not curing the patient.

Second in importance to the appendix, both in frequency of occurrence and the ability of the surgeon to receive pain and disability, are pathological conditions developing in the biliary tract. In these conditions there is often acute disease, but operation is rarely an immediate necessity and surgical effort is nearly always deliberate. In arriving at a decision to operate the outspoken expression of disease is biliary colic, and as justifying surgical intervention the most constant and concrete evidence of pathology is the presence of stones. This is elementary disease, and where surgery is directed for the relief of definite attacks of true biliary colic or for the relief of a less well-defined expression of disease, which nevertheless reveals the presence of stones when the abdomen is opened, there is no occasion to find fault with surgical effort. It is the experience of every surgeon

that in such cases uniformly good results follow.

The idea is not intended to be conveyed that the presence of stones represents the only concrete evidence of disease, and that operative effort always goes astray when directed to non-calculous disease. The increasing proportion of cholecystitis without stone, however, coming to operation and constituting a part of statistical reports, indicates that the abdomen is explored and surgery directed to the gallbladder with a great deal more temerity than formerly. Thickened and contracted walls, pericystic adhesions, enlarged lymph glands, and papillomatous and "strawberry" gallbladder constitute well-defined pathologic processes, some of them as definitely pathologic as if stones were abundantly present; but where the increasing proportion of non-calculous cases is so manifestly evident, the question arises how often surgery is directed to a gallbladder only problematically the seat of disease.

In a series of 549 cases in which operation was performed prior to 1918 because of supposed gallbladder disease, Murat Willis, of Richmond, Va., reports that stones were found in 86 per cent of instances. In a later series of 100 cases, in which it was admitted that an attempt was made to include a larger proportion of cases diagnosed in the pre-calculous stage, stones were absent 25 times. "Any gratification expected to follow an apparent increase of diagnostic skill was lessened when 40 per cent of the cases without stone showed no histologic changes that could be considered pathologic." The same operator compares his own observations with statistical studies of 365 cases operated on for cholecystitis at the Peter Bent Brigham Hospital, in which non-calculous cholecystitis constituted only 13.7 per cent of the total and included one normal gallbladder in every three non-calculous ones removed. The insistence upon applying surgical measures in the precalculous stage is commendable if we would be certain that the sacrificed gallbladder was the actual seat of disease. Disappointing results in too large a proportion of cases would seem to prove the contrary, and we have no conclusion to draw but that,

in an overzealous effort to account for certain clinical symptoms, the gallbladder, in the absence of other pathology, has been assumed too enthusiastically to be the explanation.

Dealing with the two structures in the abdomen, the appendix and the gallbladder, for which the greater part of abdominal surgery is concerned, operative effort in the case of definite disease is a positive indication, and there is no substitute procedure. Failure to cure is usually attributable to inadequate diagnosis and the ready application of surgery for pathology which does not exist. The same principle does not obtain when applied to the treatment of gastric and duodenal ulcer. Therapy of any kind applied here and measured by results obtained at the present time is only relatively satisfactory, and the claim from whatever source that peptic ulcer is wholly surgical or entirely medical is inadequate and does not improve the confusion.

There is no chronic condition within the abdomen where clinical recognition, made certain as to location by adequate X-ray studies, is so positive as that of peptic ulcer, and a failure to know accurately that an ulcer is present is the rare exception. With this development of accurate diagnosis, our knowledge of the etiology and the nature of ulcer has not gone apace, and although there are many theories as to causation they do not explain adequately the origin of ulcer, and many such theories are purely fantastic. Not knowing, then, the actual cause, it is evident that there is no specific therapy, and treatment, medical or surgical, aims at a relief of symptoms and in a certain proportion of cases the actual healing of the ulcer. The oldest operative effort and for a long time practically the only procedure was gastroenterostomy. No claim has ever been made that this operation is physiological, and among the most enthusiastic advocates of surgical treatment the operation in their own estimation must not be productive of satisfactory results, because many of these same people are now resorting frequently to the more radical procedures of pylorotomy and resection of the stomach where such operations are possible. The complete removal of the ulcer is effected in this way, but it is doubtful if the unpleasant and dangerous sequels of stomach surgery

are lessened, and immediate mortality must be perceptibly increased.

In the confusion of conflicting claims one finds certainly much difficulty in knowing positively what method of treatment of ulcer serves the best interest of the patient. Speaking for one of the largest clinics in the world, Balfour in 1924 made the statement that "in large surgical clinics where gastroenterostomy is the operation of choice for chronic duodenal ulcer, satisfactory results are reported in from 80 to 90 per cent of cases." This optimistic statement is backed by information concerning the present condition of 1,000 patients who had had gastroenterostomy done at the Mayo Clinic, in which an operative mortality of 2 per cent is admitted and in which 88 per cent of cures is claimed. Gastrojejunal ulcer was a sequel in 3.5 per cent of the cases. These statistics are more or less typical of those reported by various other surgeons who are enthusiastic advocates of surgical treatment, and in the light of such satisfactory results one wonders why there should be contention at all about a choice of method to pursue. Unfortunately, from numerous other clinics, whose work demands the same consideration for thoroughness, and whose efforts must be accepted as equally sincere for the best interest of the patient, reports do not indicate such flattering results. Immediate mortality is reported as high as 10 per cent, and it would be interesting to know positively the unreported mortality in all operative effort. In series after series reports are available to show symptoms have not been relieved in so high a proportion of cases, and often failures have amounted to 50 per cent of a series. In one instance the serious sequel of secondary ulceration had an incidence of 34 per cent. Increasingly often one hears a surgeon who has done many operations for ulcer openly acknowledge that present surgical practice is inadequate and that, within certain limitations, peptic ulcer is really a medical condition.

The surgeon who is most enthusiastic in advocacy of surgical treatment of ulcer is in the habit of creating the impression that the patient left to medical treatment may die of a fatal hemorrhage, or that he may develop cancer, or that a fatal perforation may occur.

We are well aware that hemorrhage may be a serious complication, but it is surprising to one who investigates seriously to find how well these hemorrhage cases are controlled by medical measures or how satisfactory the subsequent progress of the case becomes. It is conceded, of course, that certain cases of bleeding do require surgery for control, but the internist is as fully aware of this as the surgeon and concedes readily such a case to be operative. For actual cancer of the stomach surgery obviously is the only means we have of dealing with this condition, but to assume that the patient faces the danger of developing a cancer merely because he has an ulcer is to produce apprehension without cause. We know that cancer practically never occurs in the duodenum, and even in the stomach, where its occurrence is frequent enough, we have no positive evidence that an ulcer there ever undergoes malignant degeneration. The patient may quite readily have a perforation, but a large proportion of perforations occur in rapidly developing ulcer in patients who have had no previous symptoms, and in these cases it is certainly difficult to conceive how surgery or any other treatment would anticipate a calamity like this. No one denies that surgery is indicated immediately in a case of perforation, but adequate medical measures are capable to a great degree of safeguarding a patient against such a complication, and certainly the patient who has been on a medical plan has been warned of the significance of severe, agonizing pain and may be expected to obtain immediate surgical treatment under such circumstances.

In the present-day practice of group medicine there is a great deal of talk about co-operation between medicine and surgery, but in the particular phase of peptic ulcer there is some antagonism rather than cooperation. If we surgeons are thoroughly honest with ourselves, admitting the large percentage of failures following surgical effort and appreciating the equal effectiveness of a medical plan with no immediate mortality and no glaringly serious and dangerous sequels, we have to concede the fact that gastric and duodenal ulcer are in no way primarily surgical diseases, and that they become surgical diseases only secondarily in the presence of

a complication, like perforation or hemorrhage, or where adequate medical treatment has failed, notably in the case of pyloric obstruction due to scar tissue.

It is impossible, obviously, when speaking of surgical limitations within the abdomen to include the whole field of endeavor. The female pelvis belongs really in the scope of abdominal surgery and itself is a prolific field of surgical exploitation. It was in this phase of abdominal surgery that a conservative attitude became manifest first, and operative effort is now limited almost to dealing with inflammatory processes, ectopic pregnancy, and the removal of new growths. The importance of operation in dealing with intestinal obstruction from whatever cause needs no mention, and useless surgery in such a situation is hardly conceivable. Surgery of the spleen is interesting in exhibiting efforts both useless and curative. Splenectomy, practiced for a time for leukemia, is now an obsolete operation, while removal of the spleen in familial jaundice and in chronic purpura represents a definite curative procedure. Various devices directed for the correction of visceroptosis, short-circuiting operations, excision of the colon, and various other procedures of a radical nature are mentioned merely as nearly always representing useless and dangerous surgery.

The position of a surgeon in his community is one of importance and usually of singular distinction. In addition to possessing a requisite amount of skill for the technical performance of his work, he must possess judgment of an unusual sort, for even though the decision to resort to surgery in a given case is the work of a group of which he is merely a part, his position places upon him the principal responsibility. By the very nature of things his activities are almost unrestrained, and a great confidence implied is best rewarded by a judgment which is directed by conscience as well as wisdom and in which no other influence plays a part.

As life-saving emergencies and as measures for relieving suffering and restoring health, there is no field in surgery so prolific of opportunities as operations performed for the

correction or removal of pathological conditions within the abdomen. There is, nevertheless, a limitation to possibilities, and the fact can not escape the honest observer that

this limitation is often exceeded. The best remedy for the situation probably would be a practical application of the dictum that every surgeon should also be a good doctor.

THE USE OF IODIZED OIL IN THE DIAGNOSIS AND PROGNOSIS OF CHRONIC MAXILLARY SINUSITIS *

By E. LLOYD JONES, M.D.

Wheeling, West Virginia

Department of Otolaryngology, Wheeling Clinic, Wheeling, W. Va.

THE introduction of an opaque substance into the sinuses for roentgenographic study is as logical as the use of sodium iodide by the urologist in outlining the calices of the pelvis of the kidney or the use of barium in the gastrointestinal tract.

Any diagnostic procedure which is capable of differentiating more clearly than hitherto a thickened mucosa from polypi in a sinus or is able to show that the lining of the sinus is progressively becoming thicker or thinner, as the case may be, is worthy of trial, provided it is not injurious to the patient and is easily done.

As early as 1902, Van Osdol¹ quoted the use of lead sulphate as a contrast medium in the nasal sinuses. It was not until 1925 that Reverchon and Worms² reported the use of iodized oil in this special work. Fraser,³ McCready,⁴ and Goodyear⁵ were the first in the United States to report their findings. Since then Proetz,⁶ King,⁷ and Lobell⁸ have published accounts of its use. Anderson⁹ has published the most recent and probably the most comprehensive article dealing with the use of the oil by the injection method. Proetz uses the displacement method exclusively.

The maxillary sinus is the most frequently involved nasal sinus and the easiest to inject, and, further, it can be X-rayed at many angles. I felt that by injecting more or less routinely all chronically infected maxillary sinuses, or suspicious cases of such, some conclusions as to the value of the procedure might be reached. It is, therefore, the purpose of this paper to consider only types of chronic maxillary sinusitis.

This series includes over ninety patients

in whom one hundred and thirty injections have been made. Iodipin, a forty per cent solution of iodine in the oil of sesame, was used except where fifty per cent neosilvol was substituted to avoid any possible iodine reaction in patients to whom it was thought iodine might be injurious. Neosilvol cast a shadow, but it was not always dense enough to cast sufficient shadow. Furthermore, this solution did not have enough viscosity to hold it in the antrum; at least, one could not be sure the cavity was completely filled when the plate was taken. The iodized oil was not used in cases of tuberculosis or toxic goiter, and but one patient of the ninety complained of symptoms of iodism, *i.e.*, watering of the eyes and running nose for three days. The symptoms were mild and it is doubtful whether they were due entirely to the iodine. Patients were told to expectorate the oil as it dropped back into the nasopharynx instead of swallowing it.

The antra were punctured beneath the inferior turbinate, irrigated with normal salt solution; then the forty per cent iodipin was injected until it could be seen running out of the nose. The trocar was withdrawn and the patient X-rayed within the next five or ten minutes. No pack was placed in the nose; the oil was instilled at room temperature, which kept it quite thick. I never felt that a sufficient quantity escaped in the ten minutes required to take the picture to alter the result; in as much as when second plates in the upright position were taken, half an hour later in some of the cases, no fluid levels were seen, showing that the cavity remained filled. All the postero-anterior plates were taken in the Waters position, others lateral-prone, lateral-upright, and stereoscopic.

* Read before the sixty-first annual meeting, West Virginia State Medical Association, Fairmont, May 28, 1928.

The capacity of the average normal antrum ranges from seven to twelve c.c. An abnormally small non-pathologic antrum takes from four to six c.c. of the oil. The capacity of the pathological antrum varies from 1.5

c.c. to 5 c.c., depending upon the nature of the contents.

Several days were required for the sinus to eliminate the oil. Subsequent pictures taken showed some of the oil in one antrum eight



FIG. 1. Patient complains of rheumatism. Right antrum negative; required 12 c.c. to fill. Left clouded by transillumination, diffuse opacity by X-ray, 3 c.c. pus on irrigation. Required 4 c.c. of oil to fill. Shows slight defect about periphery and large defect in lower half.



FIG. 3. Patient has had asthma for years. Many polypi removed from nose. All sinuses transilluminate poorly; all are opaque to X-ray. Two c.c. pus in both antra; capacity 2.5 c.c. Note cloudiness of all sinuses and large filling defects in antra.



FIG. 2. Typical chronically infected antrum; clouded by transillumination, opaque to X-ray; contained 4 c.c. foul pus; capacity 4 c.c. iodized oil. Mucosa thickened and polypoid when removed through canine fossa.



FIG. 4. Chief complaint is ophthalmic migraine. Sinuses are clear by transillumination. X-ray shows slight diffuse opacity in right antrum. Irrigation obtained serous fluid which coagulated in the basin. Capacity for oil is 5 c.c. Note large, cyst-like defect in lower part of antrum.

days and in another one month after injection. Most of the patients said that they noticed no more oil coming from the nose after the third day.

FINDINGS

1. Every antrum that was clear by trans-

illumination, negative by X-ray and returned negative washings, filled completely with the oil. A number of small antra which were negative were included in this group.

2. Every antrum that was positive by transillumination and X-ray, with positive



FIG. 5. Same patient as figure 4. Nine days later; shows probable collapse of cyst with small central defect. Capacity, 9 c.c. of oil.



FIG. 7. Same patient as figure 6; lateral-prone position. Large defect in lower part of antrum.



FIG. 6. Patient complains of rheumatism. Both antra transilluminate equally and clearly. X-ray shows shadow in lower part of right antrum. Irrigation is entirely negative. Capacity is 6 c.c.; moderate sized filling defect in lower part of antrum.



FIG. 8. Patient complains of repeated attacks of left-sided sinusitis with pain over left eye. Transillumination positive, X-ray positive; irrigations produce thin pus. Capacity, 3 c.c. oil. Filling defect in center and on all sides.

washings, gave more or less filling defect, depending largely upon the chronicity of the condition.

3. Of the cases operated upon through the

canine fossa, the defect as seen in the plate corresponded to the thickness or polypoid character of the lining mucosa.

4. This procedure was of greatest assist-

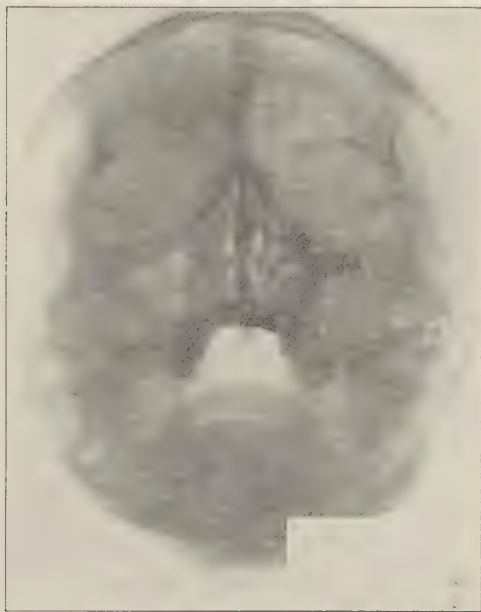


FIG. 9. Note large filling defect in lateral and medial wall of left antrum, also clouded right frontal. Left antrum clouded on transillumination. No pus. Capacity, 4 c.c.



FIG. 11. Patient complained of infra-orbital anesthesia. Left antrum clouded on transillumination. Opaque by X-ray. Irrigation fluid contained two c.c. of mucoid material. Capacity, 5 c.c.



FIG. 10. Same as figure 9. Lateral-prone position. Shows defect to be mainly in posterior part of antrum.



FIG. 12. Same patient as figure 11, but two months later. Capacity, 1.5 c.c. Biopsy through canine fossa proved tumor to be sarcoma.

ance in the diagnosis and prognosis of those cases with positive transillumination, positive X-ray and negative washings. The uninjected plate could be interpreted only as thickened mucosa. The actual thickness in most cases could be determined only by using the oil.

5. In practically all cases where the filling defect was over three mm. in width, repeated irrigations were of no use in completely clearing the antrum. There were a few cases where the filling defect was as much as eight mm. in width, in which, after eight or ten irrigations, the antra transilluminated much more clearly than previously, the washings were clear and the filling defect decreased to two mm. in width. The patient was clinically cured, at least. It is a question whether these cases do not light up later, either spontaneously or following every acute nasal infection, and whether this membrane, probably diseased, causes systemic symptoms. It is probably better economically for the patient when the antrum shows marked filling defect to advise radical removal of the diseased mucosa through the canine fossa. I have found that several irrigations usually give sufficient improvement for the time at least so that the patient discontinues treatment. This would be similar to the treatment of the syphilitic patient until the chief complaint has disappeared instead of aiming at a serologic cure.

6. Three cases out of the total showed negative transillumination findings with positive X-ray evidence. One containing pus showed a three mm. filling defect, another showed a large cyst, and in the third, although negative washings returned, there was a persistent large filling defect at the base.

7. In several cases where the transillumination was positive, and the X-ray positive, the washings were negative and the oil was the only means of differentiating the entirely negative sinus, as some proved to be, especially when bilaterally dense due to thick bones, from the type of sinus with thickened mucosa also with negative washings.

8. Polypi could frequently be detected in the plain plate but when injected there was additional evidence as to the thickness of the

mucosa from which the polypi sprang. This is of preoperative importance. The amount of mucosa to be removed can be more easily seen. A large cyst was discovered only through the use of the oil; the plain plate showed a uniform slight density of this antrum.

9. One case of sarcoma of the antrum was observed. The filling defect increased very rapidly, showing the rapid growth. It was mainly on this observation that the diagnosis of sarcoma was made. Biopsy through the canine fossa corroborated our idea as to the thickness of the tumor, the size of the remaining cavity, and the diagnosis of sarcoma.

10. In several cases it was felt that the iodized oil had distinctive therapeutic effect in that within a period of ten days most marked changes occurred in the width of the filling defect. However, in the majority the oil appeared to have no therapeutic value. The more chronic the condition, the less effect noticed. The cases that showed the best results were those which appeared to have an acute or subacute hyperplastic rhinitis, that is, repeated attacks of sneezing, watery discharge, and nasal blockage with frequent intervals of subsidence.

Anderson, in his recent article, mentions the use of the fluoroscope, moving the head about with the sinuses partly filled just as the gastroenterologist manipulates the barium meal. This is a very commendable plan, but in as much as the roentgenologist usually performs the fluoroscopy, the rhinologist would still require flat plates for his enlightenment.

The accompanying untouched photographs were chosen to represent the various types and problems involved. The legends are self-explanatory.

It was only through the hearty cooperation of our roentgenologist, Dr. William K. Kalbfleisch, that this series was made possible.

CONCLUSION

The radiographic use of an opaque medium injected into the maxillary sinus is an advance in the study of chronic maxillary sinusitis.

By studying the filling defect the following can be fairly accurately determined: (a) The thickness of the mucosa; (b) its character, if

polypoid or smooth; (c) the presence of polypi, cysts or tumors.

No serious results have been reported from its use.

Ninety patients, including over one hundred and thirty injected antra, constitute the material from which these conclusions have been made.

REFERENCES

1. Van Osdol, H. A.: "The Diagnosis of Sinus Disease by Injection of Opaque Solutions." Transactions Indiana Academy of Ophthalmology and Otolaryngology, Fort Wayne, Dec., 1927.

2. Reverchon, L., and Worms, G.: "Roentgenologic Exploration by Means of Lipiodol in Oto-rhino-laryngology." Rev. de Laryng., vol. 46, p. 186, March 31, 1925.

3. Fraser, R. H.: "Iodized Oil in Otolaryngologic Diagnosis, Opaque Injection Study of Thirty-five Maxillary Sinuses." Jour. Michigan M. Soc., vol. 25, p. 270, June, 1926.

4. McCready, P. B.: "Iodized Oil as an Aid in the Diagnosis of Chronic Sinusitis and of Maxillary Cysts." Boston M. & S. J. Vol. 195, p. 464, Sept. 2, 1926.

5. Goodyear, H. M.: "Iodized Oil in the Diagnosis of Nasal Sinus Conditions." Arch. Otolaryng., Vol. 4, p. 223, Sept., 1926.

6. Proetz, A. W.: "Further Data on the Displacement Method in Sinuses." Annals Otol. Rhin. & Laryng., June, 1927.

7. King, Edward: "Diagnosis of Nasal Sinus Disease." Ann. Otol. Rhin. & Laryng., Vol. XXXVI, March, 1927.

8. Lobell, A.: "Injection of Iodized Oil into the Sinuses with Special Reference to Technique in the Sphenoidal Sinuses." Laryngoscope, Vol. 37, p. 473, July, 1927.

9. Anderson, Hilding: "The Use of Iodized Oil in the Diagnosis of Nasal Sinus Disease." Arch. Otolaryng., Vol. 7, p. 340, April, 1928.

INDICATIONS FOR CESAREAN SECTION*

By E. T. W. HALL, M.D.

Weston, West Virginia

CESAREAN SECTION is the removal of the child through an incision made in the abdominal and uterine wall. A superficial consultation of the literature shows that the operation was performed in a more or less crude way, especially for the delivery of a live child from a dead mother, in remote antiquity. To separate the myths from the facts is difficult.

That the ancients were acquainted with the operation is known. The Egyptians with their knowledge of the embalming art and their disregard for the lives of their slaves would increase their anatomical knowledge and aid in the perfection of the operation. It is likely a myth that Julius Cæsar was born in this way. It is known by letters to his mother that she was alive during his wars.

The name is not derived from Cæsar, as is often asserted, but from the Latin description of the operation, *cæso matris utero* (Hirst), or from *partus cesareus*. The Latin verb *cedere* means to cut. *Cesones*, children delivered by section from their dead mothers, were known long before Cæsar's time (DeLee). The Lex Regia of Numa Pompilius, 715 B. C., commanded the removal of the child before the burial of the mother. The ancient Jews applied the name "Jotze Dofan" to a child delivered through the flank of the mother. Felkin, in 1879, witnessed a successful section performed by a native in the heart of Uganda. It would take ages to develop that much skill.

The first recorded section in Europe on a living woman was performed by Trautmann of Wittenberg in 1610 A. D. The amputation of the uterus after cesarean section was first proposed by Michaelis in 1809 and first carried out by Storer of Boston in 1868. In 1876 Poro of Milan modified the operation by successfully performing in addition a celio-hysterotomy, a hysterectomy. The stump of the uterus was fixed in the abdominal wound and treated extraperitoneally. This improvement reduced the mortality 50 per cent by the prevention of leakage through the uterine wound into the abdominal cavity. The next improvement was by Muller, who advocated a long incision in the abdominal wall, the delivery of the uterus through the incision, avoiding the soiling of the peritoneal cavity with liquor amnii. As time went on and a better knowledge of pathology, physiology, bacteriology, and the mechanics of labor was developed, along with the development of aseptic surgery and the discovery of absorbable suture material, the operation was more frequently done.

Sanger, in 1882, is credited with putting the operation on a scientific basis. Previous to this time the mortality was appalling. Just what the mortality is now I am unable to say, as so much depends on whether the woman has been subjected to repeated vaginal examinations or futile attempts made at delivery with practically a dead mother. Under these circumstances the mortality is high. Where a correct diagnosis of the woman's condition has been made in a hospital surrounded by

* Read before the Central West Virginia Medical Society, April 18, 1928.

especially trained nurses and assistants with a capable operator, the mortality is a little greater than after a clean appendectomy, but not any greater than a sub-total hysterectomy for multiple fibroids. I am aware that the obstetrician formerly met with cases where trained help was unobtainable and the sanitary environment was bad; I know, for I have been there—it is then a case of doing the best you can—but, as nearly every county has one or more hospitals, the prospective mothers are being educated in prenatal care and by placing themselves under the care of a physician anything abnormal should be detected in time for her to enter a hospital or other suitable arrangements be made.

That cesarean section is not done as often as it should be, especially high forceps and craniotomy being substituted, is clearly evident; and, on the other hand, that it is done with no clean-cut indication or reason is equally evident. Between these extremes are conditions absolutely necessary to conserve the life of mother and child, diminishing the risk to both, leaving the mother in a better physical condition with a more rapid return to normal health assured.

INDICATIONS

Dystocia, either maternal or foetal, often renders normal delivery impossible. Let us very briefly review the diameters of the normal female pelvis. The pelvis is composed of bones, muscles and ligaments, divided into the upper or false and lower or true, while the shape and size of the false pelvis or superior strait often gives an idea of the shape and size of the true pelvis or inferior strait, which is the one with which we are most concerned, as it is here that the impediments to delivery usually exist. The pelvic inlet or superior strait is bounded by the upper borders of the pubis in front and the linea innominati at the sides and the sacral promontory behind. Its diameters are antero-posterior 11, transverse 13, and oblique 12½ c.m. The plane of least pelvic dimensions extends through the lower margin of the symphysis pubis, the tip of the sacrum and the ischial spines. Its antero-posterior diameters measures 11½ and its transverse 10½ c.m., the latter being the shortest diameter in the normal pelvis (Williams). The outlet of

the pelvis is known as the inferior strait and is bounded posteriorly by the tips of the coccyx, laterally by the greater sacro-sciatic ligaments and the ischial tuberosities, and anteriorly by the lower margin of the pubic arch. The antero-posterior diameters are 9½ c.m., which during labor are increased by the backward displacement of the coccyx to 11½ c.m. The transverse diameters are 11 c.m.

Another important diameter is the conjugata vera, measured from the upper and posterior part of the symphysis pubis to the second sacral ligaments. This diameter is 11 c.m., and it is from this diameter that a start is made to measure and estimate the size of the pelvis.

In practice, we meet with various degrees of contraction, due to many different causes. The important question that confronts us is the contraction so great that the woman can not normally be delivered. With a conjugata vera of 6½ c.m. or less it is impossible for the child to pass through the pelvis, and this is an absolute indication for cesarean section, no other method of delivery being entitled to consideration. With a conjugata vera of 6½ to 9 c.m. the indications are relative, as a large percentage of these cases will deliver themselves, especially if the diameters are 8½ or 9 c.m., the child being normal in size.

Therefore, nature should be given a trial, noting the progress by abdominal palpation and an occasional rectal examination. Should the head engage and come down into the lower strait, and the impaction not too marked, the low forceps operation would be indicated. In some of these patients pubiotomy or vaginal cesarean section are recommended by some. As an abdominal section will usually heal quicker, I think this operation should be preferred. I think a high forceps operation is rarely, if ever, indicated. When the conjugata vera is not less than 6½ nor greater than 9 c.m., a craniotomy is the operation indicated—if the foetus is dead. With a breech or transverse presentation in a pelvis only moderately contracted, especially if the mother is a primipara, cesarean section is a much safer procedure, both for the mother and the child, as a very few minutes' delay in delivery of the child's head—and you all know how difficult at times it

is—is almost always fatal to the child, and the resulting traumatism to the soft parts of the mother, often necessitating a secondary operation, does not leave the mother in as good condition as a cesarean section.

By way of a passing remark, I am convinced that in many elderly primipara with a breech presentation foetal and pelvic diameters perfectly normal, a higher percentage of the babies would be born alive with less danger of infection and post-puerperal complications of the mother if cesarean section were done.

Exostoses of the pelvis markedly diminishing any of the important diameters; stenosis of the cervix or vagina, either benign or malignant; fibroids or other tumors of the uterus or its adnexia, especially cysts or other large tumors of the ovaries projecting in front of the child's head, are evident indications.

When seen in early pregnancy, if possible, these conditions should be remedied; but if the abnormal condition is unremovable, a therapeutic abortion should be performed; but when seen during labor we have no choice. Foetal dystociæ that may make a cesarean section obligatory are: an unusually large child; hydrocephalus; monstrosities; multiple pregnancy, the first child being in a transverse presentation; large cysts of the kidney; marked abdominal ascites and rigor mortis of the foetus.

Accidental hemorrhage or abruptio placentæ is a forcible separation of the placenta from its normal site of implantation. The hemorrhage continues with a closed cervix, the birth canal being unprepared. Cesarean section offers the best chance of saving the mother's life. The child is generally lost, whatever the treatment. In placenta prævia marginalis or lateralis there are other methods of treatment that give good results, and I do not think a cesarean section would be justifiable. In placenta prævia centralis with a viable foetus, undilatable cervix with a mother in fairly good condition, my experience is that cesarean section gives the best results. The hemorrhage is easier controlled and infection is not so likely to occur. The mortality rate is much less for both mother and child.

In the January number of *Surgery, Gynecology and Obstetrics*, Broadhead and Langrock of New York report twenty-two cases of placenta prævia centralis. Three were treated by section and lived; nineteen were treated by the modified de-Ribe's bag and version or manual dilatation and version, with four deaths. This bears out my contention that a section is the safest procedure.

In consideration of the indications for cesarean section in eclampsia, the pre-eclamptic state would naturally first engage our attention. When modern methods of therapy have honestly and vigorously been instituted and carried out with little or no abatement of the symptoms, the child viable, a cesarean section will produce wonders, changing a partially blind, oedematous, albuminuric, distressed woman into a bright, healthy mother and, in a large percentage of cases, with a healthy baby in her arms. Quite recently I did a cesarean section on a primipara, eight months pregnant, who had everything done for her, apparently, that could be done medically, with a result as happy as described. With ushering in of the eclamptic attack, an elongated and rigid cervix and a viable child, cesarean section is indicated. I do not wish to be understood as asserting that an eclamptic seizure *per se* is an indication, for it is not; but only under the conditions enumerated. I have some pronounced views on the management of eclampsia, having tried all of the usual methods of treatment in the conditions mentioned, and none of them have given me as satisfactory results as cesarean section.

In cancer of the cervix, with an extensive indurated and bleeding mass, the indication is absolute. Prolapse of the umbilical cord when very rarely it is impossible to replace or hold it in place is a relative indication.

Where a woman has had a previous difficult labor with much laceration of the soft parts, which has been successfully repaired, a cesarean section should be seriously considered.

In conclusion, it is impossible to properly handle these cases unless there is a sympathetic cooperation between the obstetrician and surgeon. As to the type of the operation in a clean case, I prefer the classical; where sepsis is in doubt, the modified Poro.

CASE REPORTS

Gunshot Wounds of the Heart

*With Report of a Case **

By WILLIAM R. LAIRD, M.D. and
MILTON C. BORMAN, M.D.,
Montgomery, W. Va.

It has been the opinion of many physicians and surgeons that gun shot wounds of the heart or the great vessels entering that organ produce almost instantaneous death. In a recent murder trial in West Virginia, this opinion was advanced by a physician of experience, and it was upheld by several physicians in attendance at the trial. The attorney for the defense, however, would not accept that opinion.

C. W. Allen has recently reported the successful removal of a bullet from the walls of a heart.¹ R. Syller reports the treatment of old impacted gun shot projectiles in the heart.² Although the patient described in the following report died, he might have lived if the bullet which ranged through the heart muscle had not also ruptured the inferior vena cava.

Case Report

The patient, a well-developed muscular colored male, 24 years old, was shot with a 32-caliber pistol 16 hours and 40 minutes prior to his death. Post-mortem examination, revealed the following: Of the four bullets that entered the body, two ranged through the superficial tissues of the loin and chest, and one pierced the right chest entering the pleural cavity without serious damage. The fourth bullet entered the left upper arm just above the insertion of the deltoid muscle, coursed anteriorly to the humerus, left the arm on its medial surface, entering the left chest through the sixth interspace in the left anterior axillary line. In the chest cavity, the bullet passed through the lower lobe of the left lung, the pericardial sac, and the heart muscle of the left ventricle on its posterior aspect. The wound in the heart muscle was one-half

centimeter deep, two centimeters long, and did not enter the left ventricular cavity. Leaving the cardiac muscle, the bullet pierced the inferior vena cava, and lodged in the adjacent liver tissue. Both the left pleural cavity and the pericardial sac were filled with clotted and unclotted blood. No other abnormalities were noted grossly or histologically in the post-mortem examination.

Summary

Bullet wounds of the heart do not always produce immediate death and are not necessarily fatal. A case is presented of a negro male adult, who lived 16 hours and 40 minutes after a 32-caliber pistol bullet had entered his left chest passing through the left lung, the left ventricle, inferior vena cava, and finally lodged in the liver. It is probable that death was postponed a few hours by 1000 cc. normal saline given intravenously followed by 380 cc. whole blood by direct transfusion three hours before death.

REFERENCES

1. Allen, C. W.: New Orleans M. & S. Jour., 1928, 80:458.
2. Syller, R.: Klin. Wchnschr., 1927, 6:744.

Electrical Shock

*With Report of Two Cases of Strabismus
Produced by It **

By HUGH G. THOMPSON, A.B., M.D.
Charleston, W. Va.

Because of the common use of electricity, frequent shocks by individuals are experienced. Some are rather mild in nature while others are death-producing. It is very important for the physician and even the laity to know when aid to the victim can be of some avail and what are the best methods of resuscitation.

The injurious or fatal effects of electrical energy upon human beings, whether from conductors of electrical current or from lightning, depends upon the energy and density of the current paths through the tissues.

* From the Pathological service of the Coal Valley Hospital, Montgomery, W. Va., and read before the staff meeting, Coal Valley Hospital, July 23, 1928.

Whether induced from high- or low-voltage currents, the method of death differs. Low-tension currents produce death by causing a fibrillation of the ventricles, while high-tension currents bring about death by producing a paralysis of the respiratory center with resultant asphyxia. As used in the electric chair, alternating currents of high and low voltage are used to render death doubly certain.

If used within 15 to 20 seconds after the beginning of ventricular fibrillation, a high-voltage current has the unique property of arresting the fibrillation, permitting normal cardiac rhythm to be resumed.

Single electrical discharges are not so likely to throw the heart into a state of fibrillation, but repeated discharges may do so.

Following a shock of sufficient strength, the victim may cry out or give a convulsive leap and fall unconscious. Contacts not producing fibrillation may produce immediate loss of consciousness which returns after a variable lapse of time. If consciousness is not lost, the muscular contractions resulting are very painful and there may be a sense of cardiac oppression.

Electrical accidents seem to produce a wide diversity of results. In some cases short contact with not supposedly dangerous currents may produce death after a short interval, while longer contact with high-voltage currents may be survived.

This variability of results is due to one or more of the following factors:

11. Individual susceptibility.
2. The path of the current through the body. When it is through the heart, the result is more often fatal.
3. The resistance of the body.
4. Strength of the current.
5. Duration of contact.
6. Unipolar or bipolar contact with the current.

Electrical shock may produce one of the following results:

1. Stoppage of the circulation by producing a ventricular fibrillation. Respiration

may continue for a short time falsely prognosticating recovery. These victims become extremely pale. There is no practical method of producing recovery in these cases though artificial respiration should at least be tried.

2. Inhibition of the respiratory center with the heart continuing to beat. Under such conditions the patient becomes extremely cyanotic. How long this state may persist is not known, but artificial respiration should be begun as soon as recognized and persisted in for at least four hours. There is a case reported where eight hours elapsed before the center recovered and normal breathing began.

3. Cessation of both heart and respiration. As stated above, where fibrillation has set in there is no known method of stopping it.

4. Mechanical injuries resulting from burns or falls.

The larger industries and American Red Cross now advocate but one method of artificial respiration, and that is the prone pressure method.

Following electrical shock, even though the patient seems dead, artificial respiration by the prone pressure method should be instituted at once.

The technique is as follows:

1. Place patient in prone position with one arm extended above his head, the other flexed at the elbow and the face turned to one side and resting on hand or forearm so that nose and mouth are free for breathing.
2. Kneeling astride his thighs and facing his head, place the palms of the hands on the small of the back with thumb and fingers in a natural position, so that the little finger just touches the lowest rib.
3. With arms held straight, swing forward slowly so that the weight of your body is gradually, not violently, brought to bear on the patient. The elbows should not be bent. This act should require two seconds.
4. Immediately swing back, removing the pressure and returning to the original position.

5. Repeat the forward and backk movement approximately 15 times to the minute.

6. While artificial respiration is being given, an assistant should remove any foreign articles from mouth, loosen tight clothing, and keep the patient warm.

Some of the injuries produced by electrical shock may involve:

1. The nervous system.
2. The vital centers.
3. Burns to skin.
4. Injuries to eye.

Briefly, I wish to report two cases where an internal strabismus was produced by an electrical shock of low voltage. An extended search of the literature has failed to find report of a case of strabismus due to electric shock.

Case 1, E. M., male, age—5 years.

Chief Complaint—Internal squint of left eye.

History of present illness—On February 16, 1927, above party grabbed a live wire (carrying about 120 volts) lying on the ground. His sister heard him scream and rushed out and found him on the ground with back of head touching wire. She pulled him loose, sustaining a slight shock herself. After freeing him, he seemed very pale and staggered around like a drunken man. He seemed a little cyanotic in the face and his respiration seemed normal. That evening his father claims that the boy's eyes seemed to act abnormally, but it was not until the next few days that he noticed that the left eye turned in. The patient has been very cross since the accident and seemed at times as though the mind was not exactly right. Seemed very nervous and excitable. His sleep was poor. These symptoms have improved very much in the last few weeks. Since the accident, his appetite has been poor, bowels regular and digestion good. The kidney action is normal.

Past Medical History:—Scarlet fever, five weeks ago. Measles when six months

old. Whooping cough when very young. No history of diphtheria.

Social History—Always bright, active child, but since accident has been more nervous, often going into tantrums.

Family History—Three brothers and one sister. Mother and father, living and well.

Physical Examination—Young, active, mentally alert child. Station and gait—normal. Face, negative. Eyes, left internal squint. Small scar, size of dime, in mid-occipital region. Teeth, tonsils and throat, normal. Neck, negative. Heart, normal in size and rhythm. Lungs, clear throughout. Abdomen, negative. Extremities, scaling of hands and feet (post-scarlatinal). No evidence of any burns. Patellar reflexes, absent.

Laboratory Findings—Blood count, W. B. C. 16,700. H. B.-80 percent. R. B. C. 4,500,-000. Urine, negative. Blood Wasserman, negative.

Diagnosis—Internal strabismus left eye. No nervous or mental symptoms.

Examination by Dr. Shepherd shows eight diopters of hyperopia, left eye.

Case 2, V. C., female, age 21.

Chief Complaint—Left internal strabismus.

History of present illness—Patient states that, when 4 years of age, she put an electric wire, carrying 110 volts, in her mouth. Immediately she received a severe shock and dropped the wire. A few days later her parents noticed that the left eye turned inward though the eyes had been normal before. There were no further results from the accident.

Physical Examination—Negative, except for a left internal strabismus.

In the first case, probably due to the high degree of hyperopia, there was a tendency to a strabismus which no doubt was actually produced by the electrical current.

In the second case, the condition of the eyes about the time of accident is unknown.

ABSTRACTS

Lobar Pneumonia Considered As a Pneumococcic Massive Atelectasis of the Lung

POL. N. CORYLLOS and GEORGE L. BIRNBAUM

(From the Dept. of Surgical Research, Cornell Univ. Med. College, New York City)

The Bulletin of the New York Academy of Medicine, Second Series, 1928, Vol. IV, pp. 384-399.

The reduction in mortality rates in pneumonia during the past decade has been brought about in some measure by our bacteriological studies and the use of sera and antibody solutions. A further advance upon the Captain of Death is to be seen in the use of the bronchoscope by means of which a tenacious fibrinous plug of pneumococ exudate is aspirated from an occluded bronchus. In other words, surgical drainage of a closed cavity is provided as an aid to rapid resolution of the pulmonary inflammation. The value of bronchoscopy in massive atelectasis postoperatively, as well as in the so-called diphtheritic pneumonias, has been previously well established.

Abstract

The authors present a resume of data accumulated on experimental pneumonia in dogs, and point out the similarities between lobar pneumonia and massive stelectasis. In their opinion, the sequence of pneumonia is as follows: in the course of a pneumococcic infection of the bronchial tree, occlusion of a lobar bronchus occurs and this starts the syndrome called lobar pneumonia. This obstruction is effected by the viscid fibrinous bronchial exudate, aided perhaps by edema of the mucosa possible damage to the ciliated epithelium.

This would explain the lobar distribution, the sudden onset, the crisis, the abortive forms, the predominance of localization in the inferior lobes, and often found displacement of the heart and diaphragm to the affected side. Prints of X-ray plates of two of their experimental cases of massive atelectasis are compared to the plates of two of their experimental pneumonia cases.

The history and findings of a male patient aged 23 years, with pneumonia due to the pneumococcus type III, on the service of Dr. Lewis A. Conner are also presented. Crisis started within less than four days after onset of the disease and forty-three hours after bronchoscopy.—M. C. B.

The Extra-Cerebral Causes of Epilepsy

By T. H. WEISENBURG, M.D.

Annals of Internal Med., 1928, Vol. 2, No. 1.

The past few years have shown such a variety of treatments for this class of unfortunates, such as removal of tonsils, the appendix, resection of colon, high fat diet, low fluid intakes, and many others, that an analysis such as this of the causes of epilepsy arising outside of the brain is of interest and timely.

Abstract.—Broadly speaking, Dr. Weisenburg, an experienced neurologist, classifies the extra-cerebral causes of epilepsy as follows:

1. Toxic states.
2. Reflex causes.
3. Infectious diseases.
4. Circulatory disorders.
5. Respiratory disorders.
6. Endocrine disorders.

After discussing these various headings, he comes to the following conclusions:

Toxic States.—Many conditions, such as intestinal upsets from overeating, may cause convulsions in children but never in adults. He believes that in these children there is a tendency to fits. He does not diagnose epilepsy unless there is loss or impairment of consciousness.

Reflex Epilepsy.—He refers to adenoids, tonsils, carious teeth, masturbation, intestinal worms, while quoting the different opinions of noted and distinguished neurologists. He feels that they may all be contributing causes but never primary.

Infectious Diseases.—In these, his belief is that, when convulsions occur, it is due to direct involvement of the brain or else the subject is predisposed to epilepsy.

Circulatory, respiratory and endocrine are dismissed as playing little, if any, part in the disease.

Summary.—It is obvious that, particularly

in children, there occasionally occur epileptic attacks in which toxic or reflex causes may be found, removal of which may cause a cessation of convulsions. Nevertheless, it is my belief that such children either belong to the so-called spasmophilic group or are definitely epileptic. By the spasmophilic I mean a type of individual in whom there is a tendency to convulsions whenever the body functions are not working in harmony. The probabilities are that the majority of such children are potentially epileptic, and that during the rest of their lives future attacks may develop if some untoward condition develops in the body.

Conclusion.—Strictly speaking, there are no extra-cranial causes for epilepsy. Whenever convulsions occur from so-called toxic, reflex or other causes, it is because the subject of the attacks has either a tendency to epilepsy or is an epileptic.

A. H. H.

Treatment of Pneumonia

BROOKS, H. *The Treatment of the Patient with Pneumonia.*—The author emphasizes the fact that to all practical purposes the medical profession is still as helpless in the treatment of pneumonia as it was a quarter of a century ago.

Much, however, has been learned as to treatment of the pneumonia patient in contradistinction to treatment of the disease itself.

The most essential single object to be accomplished in the handling of these patients is rest, not only physical but mental and emotional as well. Quiet surroundings are needed. Visitors should be excluded.

The patient should be allowed to select his own position in bed. Cough should be combated by codeine, morphine or opium in another form. Bromides are also indicated when rest cannot be accomplished by physical means alone.

Where the cough is loose it is probably physiological in intent and is best left alone. When dry and irritating, relief may be obtained by ammonium chloride or the iodides. In still other cases sedatives may be indicated.

Some cases do splendidly under the open-air treatment, others badly, especially those of influenzal origin. Persons from tropical countries cannot stand this treatment.

The room-temperature should be low, except in cases of pneumonia following measles, scarlet fever or influenza and in old age or in traumatic or debilitated cases.

Oxygen is very useful in cases suffering from cyanosis and in certain unexplained cases of dyspnea.

Most fatal cases of pneumonia terminate with a circulatory failure. The basic pathology in most cases of cardiac failure is a myocardial degeneration with a consequent giving way, a dilatation of that portion of the heart exposed to stress, in this disease the right heart. In young healthy subjects preliminary digitalis therapy is not indicated unless signs of circulatory embarrassment appear. In adults and aged patients the preliminary use of digitalis may save the day. In some instances strophanthus, caffeine and strychnia give better results. Caffeine works admirably when the circulatory failure is associated with a nervous defect.

A method of treatment of associated crises of the pulmonary and cardiovascular systems is often seen in a properly timed venesection. This is particularly valuable in the early stages of the disease when the pulmonary congestion, perhaps with edema, is especially critical.

The most satisfactory measures for relieving tympanites are pituitrin or adrenalin, singly or associated, camphor, caffeine and occasionally strychnine with enemas.

The most satisfactory of the less frequently observed renal insufficiency is usually along circulatory lines, but theosin, diuretin and caffeine are usually sufficient to re-establish kidney action.

Water, fruit juices and sugar solutions given in abundance are always beneficial. Sufficient alkali to hold the urine nearly at the amphoteric point is often advisable.

Delirium usually calls for the active exhibition of chloral, of the bromides, or for morphine, opium or codeine.

Diet is of little importance.

When the pneumonia patient becomes septic very little can be done.

The patient who recovers from pneumonia will not be completely back to his normal condition for perhaps six months.—*International Clinics*, December, 1927.

TUBERCULOSIS ABSTRACTS

(Copy furnished by the West Virginia Tuberculosis and Health Association)

Surgical Rest in Pulmonary Tuberculosis

To be of value, surgery must be invoked before the patient's reserve is depleted. Surgery is not a substitute for, but a supplement to, the older methods of treatment. The several surgical procedures now employed are all based on the principle of compressing the diseased lung, thus limiting its motion, which reduces the absorption of toxic products, controls hemorrhage and favors repair.

PHRENIC AVULSION, or the extraction of at least four inches of the phrenic nerve through an incision at the base of the neck, may lead to striking improvement but rarely effects a

cure. Phrenic avulsion secures localized rest by paralyzing the corresponding half of the diaphragm. This eliminates the piston-like action of the diaphragm and lessens its excursions. Unless held down by adhesions, the diaphragm domes upward and

thus materially reduces the capacity of the corresponding half of the thorax. Coughing is made easier and more productive; the amount of sputum diminishes and the lesions improve. Because of the stasis of blood and lymph within the lung and the lessened action, gas, air and fluids are less readily absorbed; hence, when phrenic avulsion is combined with artificial pneumothorax, the necessity for refills is less frequent.

INTRAPLEURAL PNEUMOLYSIS is the cutting by the electro-cautery of thin, firm, isolated adhesions within the pleural space. It is indicated in

exceptional cases with certain types of adhesions which interfere with complete or satisfactory collapse of the lung by artificial pneumothorax. The risks involved seldom warrant the operation in the present state of its technique.

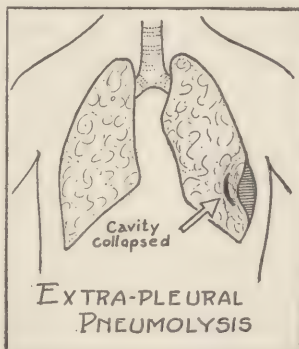
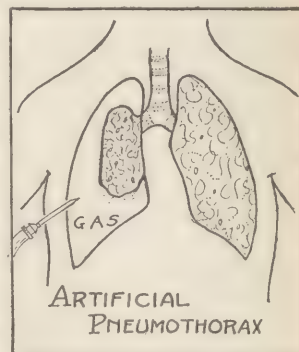
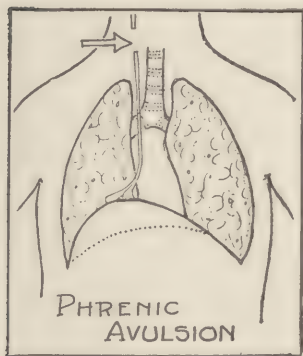
EXTRA-PIEURAL PNEUMOLYSIS is the localized direct compression of a diseased area or cavity by bluntly separating the two layers of the pleura through a small opening in the thoracic wall and filling the space with fat, muscle, gauze, or plastic wax. While it is theoretically a good procedure, the operation is uncertain and incomplete and has the danger of infection, ulceration, rupture of the cavity, and hemorrhage.

LIMITED THORACOPLASTY was devised originally for the obliteration of empyema cavities by resecting lateral segments of the ribs. The outward spring of the rib-ends, however, is unopposed when the rib is resected in the area of

greatest convexity and the stumps serve as attachments for the auxiliary muscles, forming rigid buttresses which impede rather than favor collapse of the thorax.

ARTIFICIAL PNEUMOTHORAX is the compression and consequent immobilization of the lung by introducing under pressure an inert gas into the pleural cavity. Carson advocated the use of artificial pneumothorax in 1821. Houghton, in 1832, reported a case of advanced consumption which recovered after spontaneous pneumothorax. This procedure gained

in favor until now it is regarded as a most important adjunct in treatment of tuberculosis.



THE WEST VIRGINIA MEDICAL JOURNAL

JAMES R. BLOSS, *Editor-in-Chief* - - - - - Huntington

...ASSOCIATE EDITORS...

J. HOWARD ANDERSON
Marytown

WALTER E. VEST
Huntington

C. A. RAY
Charleston

HARRY M. HALL
Wheeling

THE JOURNAL issued on the first of each month. Entered as second-class matter, January 1, 1926. Acceptants for mailing at special rate of postage provided for in Section 1103, Act of October 3, 1917. Authorized July 24, 1919.

Subscription to Members	\$2.00 Per Year
Subscription to Non-Members	\$3.50 Per Year
Single Copies	50 Cents

OFFICERS

President:
C. A. RAY Charleston

First Vice-President:
D. G. PRESTON Lewisburg

Second Vice-President:
E. L. ARMBRECHT Wheeling

Third Vice-President:
W. C. SWANN Huntington

Executive Secretary:
MR. JOE W. SAVAGE Charleston

Treasurer:
T. MAXFIELD BARBER Charleston

Delegates to A. M. A.:
JAMES R. BLOSS (1927) Huntington
HENRI P. LINSZ (1927-28) Wheeling

Alternates:
A. A. SHAWKEY (1927) Charleston
HARRY M. HALL (1927-28) Wheeling

COUNCILLORS

Chairman of the Council for 1928:
R. H. DUNN South Charleston

First District:
H. R. JOHNSON (1-year term) Fairmont
C. G. MORGAN (2-year term) Moundsville

Second District:
C. H. MAXWELL (1-year term) Morgantown
C. H. HALL (2-year term) Elkins

Third District:
JOHN FOLK (1-year term) Bridgeport
I. D. COLE (2-year term) Clarksburg

Fourth District:
J. E. RADER (1-year term) Huntington
W. E. VEST (2-year term) Huntington

Fifth District:
J. HOWARD ANDERSON (1-year term) Marytown
H. G. STEELE (2-year term) Bluefield

Sixth District:
R. H. DUNN (1-year term) South Charleston
H. A. WALKUP (2-year term) Mt. Hope

☐ All original articles for THE JOURNAL must be made to it exclusively. Communications and items of general interest to the profession are invited from all parts of the state. Notices of deaths, removals from the state, changes of location, etc., are requested.

☐ Our readers are requested to send marked copies of local newspapers containing matters of interest to members of the medical profession. Name of sender should be given.

CONTRIBUTIONS TYPEWRITTEN

☐ Contract with present printer specifies all articles, communications, etc., MUST BE TYPED.

ADVERTISEMENTS

☐ Advertising forms will go to press not later than the tenth of each month. All advertisements must conform to the standard established by the Council of Pharmacy and Chemistry of the A. M. A.

WOMAN'S AUXILIARY

Mrs. R. V. Shanklin, Gary, President; Mrs. T. H. Harris, Parkersburg, vice-president; Mrs. W. C. Swann, Huntington, secretary; Mrs. W. D. Simmons, Slab Fork, treasurer.

Councillors

Mrs. C. G. Morgan, Moundsville, first district; Mrs. Ralph Maxwell, Morgantown, second district; Mrs. H. D. Price, Parkersburg, third district; Mrs. J. R. Bloss, Huntington, fourth district; Mrs. A. G. Rutherford, Welch, fifth district; Mrs. E. S. DePuy, Beckley, sixth district.

Delegates to Woman's Auxiliary of A. M. A.

Mrs. R. V. Shanklin, Gary; Mrs. B. S. Preston, Charleston. Alternates—Mrs. George Jeffers, Parkersburg; Mrs. W. B. Scherr, Morgantown.

STANDING COMMITTEES

Medical Defense Committee

C. G. Morgan, Moundsville, Chairman; H. A. Walkup, Mt. Hope; H. G. Steele, Bluefield.

Committee on Scientific Work

O. B. Biern, Huntington, chairman; G. H. Barksdale, Charleston; A. G. Rutherford, Welch.

Public Policy and Legislative Committee

R. A. Ireland, Charleston, chairman; R. H. Walker, Charleston; James McClung, Richwood; C. R. Ogden, Clarksburg, D. A. MacGregor, Wheeling.

Committee on Medical Education

John N. Simpson, Morgantown, chairman; W. T. Henshaw, Charleston; W. S. Fulton, Wheeling.

Committee on Professional Relations

John R. Shultz, Charleston, chairman, (1-year term); A. G. Rutherford, Welch, (2-year term); W. R. Goff, Parkersburg, (3-year term); Hugh G. Nicholson, Charleston, (4-year term); E. P. Smith, Fairmont, (5-year term)

Workman's Compensation Committee

W. A. MacMillan, Charleston, chairman; J. Ross Hunter, Charleston; R. H. Walker, Charleston.

Committee on Public Health

David Littlejohn, Charleston, chairman; John Thames, Charleston; Will McLain, Wheeling.

Surgical Section

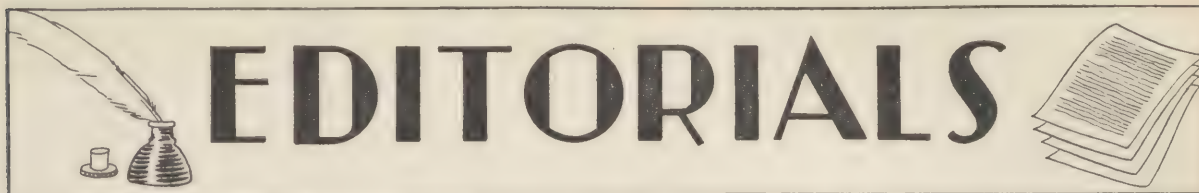
Wade H. St. Clair, Bluefield, chairman; John E. Cannaday, Charleston, secretary.

Eye, Ear, Nose and Throat Section

E. C. Hartman, Parkersburg, chairman; I. D. Cole, Clarksburg, secretary.

Hospital Association Officers

L. W. Lawson, Logan, president; J. E. Wilson, Clarksburg, first vice-president; R. A. Ireland, Charleston, second vice-president; J. S. Turk, Wheeling, treasurer.



Journal Contributions

We have during the past few months received many flattering compliments on the text and make-up of our journal, and we hope not only to maintain but increase its popularity. Your board of publishers has worked faithfully and devoted much time to editing manuscripts and reading proofs in addition to their individual contributions, but there is a limit to our efforts to make our journal interesting without the cooperation of the rank and file of the association. A large majority of our scientific articles are written by men of West Virginia. Hence it is West Virginians who are making the journal a reputable publication. Much interest is taken in case reports and abstracts and we have had the pleasure of publishing a goodly number during the past few months, but a less number is coming in, and everybody seems to be waiting for "George to do it."

We have heretofore appealed to individuals for these contributions and have been gratified with their prompt compliance, and we are now sending a general request for case reports, abstracts, and general news. We hope our old contributors will wake up and pass the idea on to a neighbor whom you may know to have something of general interest if it were only reported. We presume that most physicians read the *Journal of A. M. A.* or some other good publication and find something in each number of particular interest. Select the good ideas therein, write and tell us what you think about it, and through your own journal tell your friends about it. Younger men of the profession will find this an excellent method of reaching a definite opinion or conclusion from their own observations. The young physician who would succeed must have opinions of his own, and this idea thoroughly crystallized in his mind gives him the courage to express and act upon his opinion without fear of criticism.

We hope the young men of our association will take advantage of this opportunity offered by the journal, and that the "old war horses" will bear in mind their work is not complete and will continue to contribute their share.

BOARD OF PUBLISHERS.

Liability Insurance

There has been considerable talk in West Virginia, and especially within the West Virginia State Medical Association, of a bill to be introduced at the next session of the state legislature providing compulsory automobile liability insurance on all motor vehicles. That such a law would be a great benefit for doctors and hospitals treating patients injured in automobile accidents is beyond question, and it is to be hoped that such a bill can be put through in 1929.

The association is in receipt of a copy of the laws relating to compulsory automobile liability insurance from the commonwealth of Massachusetts that will undoubtedly be of interest to all doctors and hospitals interested in the proposed statute for West Virginia. The Massachusetts statute provides that no motor vehicle or trailer shall be registered or licensed unless the applicant presents a certificate from an insurance company authorized to transact business in that state setting forth that the company has issued the applicant a motor vehicle liability policy covering the motor vehicle for which the license is intended.

There are several exceptions noted in the Massachusetts law, dealing mainly with liability bonds and cash deposits. The motor vehicle liability policy is defined as "a policy of liability insurance which provides indemnity for the insured and any person responsible for the operation of the insured's motor vehicle with his express or implied consent against loss by reason of the liability to pay damages to others for bodily injuries, including death at any time resulting therefrom,

sustained during the term of said policy by any person other than employees of the insured of at least ten thousand dollars on account of any one accident resulting in injury to or death of more than one person.

There is further provided in the Massachusetts law a board of appeal on motor vehicle liability policies and bonds, consisting of the commissioner of insurance, the registrar of motor vehicles, and an assistant attorney general. The commissioner of insurance is the chairman of the board. Any member of the board has power to summon and compel the attendance and testimony of witnesses and the production of books, records, and documents, and may administer oaths.

Actions for assault and battery, false imprisonment, slander, actions of tort for injuries to the person and actions of contract or tort for malpractice, error or mistake, against physicians, surgeons, dentists, hospitals and sanitarium, shall be commenced only within two years next after the cause of action accrues.

All members of the association are urged to interest themselves in the passage of a compulsory motor vehicle liability insurance law in West Virginia.

Fake Advertising

It has been estimated by Mr. W. E. Humphrey, chairman of the Federal Trade Commission, that the American public is annually robbed of more than five hundred million dollars by fraudulent advertising. Such advertising presents an old and much discussed, yet interesting, problem. It is by no means comforting that the post office department of the United States, the department of justice and the federal trade commission have all tried to control this gigantic fraud, only to meet with failure.

In a communication to Mr. Fleming Newbold of the Evening Star, Washington, D. C., Mr. Humphrey wrote, "What is the remedy? What of the publishers? Without his help these schemes could not be successfully consummated. The publisher helps perpetrate the fraud. He shares in the ill-gotten gains. The publisher is the 'go-between'

that brings the crook and his victim together. I believe that one action against a publisher would often have more effect than fifty suits against the advertiser alone."

The suggestion that the remedy for this situation lies with the publisher is almost as old as the problem itself; and yet it seems to be the only practical line on which to direct the fight. The fleeting crooks who, through fake advertising claims, prey upon the ignorant and the poor, have long ago lost caste. The publishers have not. Unless the publishers do lose caste, and until they do, there is unquestionably some hope of ridding our newspapers and periodicals of their vicious traffic in fraudulent advertising copy.

The situation here in West Virginia recently took on a more sombre hue when a number of our larger daily newspapers began the practice of advertising their advertisers. This practice was first noticed about four months ago when one of the largest dailies in West Virginia, in a full page advertisement, told the public that it could buy with its eyes shut. The point seemed to be that all of the products advertised in this particular paper were so far superior to other products that no further investigation was needed.

The members of the medical profession of this state will undoubtedly be interested in knowing that the same edition of the same paper that carried the advertisement mentioned above also carried advertisements of Murine, Lydia Pinkham, Listerine, Thedford's Black Draught, S. S. S., Konjola, Vego, and Tanlac. The claims of all of these compounds and nostrums have been declared false and fraudulent by the bureau of investigation of the American Medical Association.

More recently other advertisements have appeared wherein the newspaper carrying the advertisement chanted the praises of its advertisers, sparing neither adverbs nor adjectives in forcefully putting its message before the reading public. Not one, but a dozen newspapers have taken up the practice. And without exception, they carry from forty to one hundred inches of paid space devoted to quack remedial concerns denounced by the A. M. A.

We can ask what we are going to do about it, and we can answer that we don't know. The State Medical Society of Texas attempted to solve the problem by counter-advertising and accomplished little or nothing, except that they played into the hands of the newspaper. The Department of Justice attempted to solve the problem by arresting and prosecuting the companies and individuals responsible for fake advertising, and failed. The post office department attempted to solve the problem by denying the use of the United States mails to fraudulent advertisers, and failed. The federal trade commission attempted to solve the problem by issuing orders to "cease and desist," and failed. In the meantime, the

profitable business of fleecing the public is increasing by leaps and bounds.

Some day a solution may be successfully worked out. It is our guess that when that day arrives, the man who worked out the solution will be paid due homage by his co-workers, but will receive faint praise from the public that he has protected. It looks as though the publishers of this country provide the only line of attack and it is to be hoped that some method may be found to make the publishers responsible for the advertisements they carry. At the present time, at least in West Virginia, the pendulum seems to be swinging in the opposite direction.



NEWS NOTES OF COMPONENT SOCIETIES



Barbour-Randolph-Tucker

The Barbour - Randolph - Tucker County Medical Society held its regular meeting at Elkins at 6 o'clock on the evening of August 8. Following a supper served to the members present, the scientific program was taken up and was featured by talks from Dr. B. I. Golden of Elkins, Dr. R. J. Condry and Dr. W. G. Harper. Dr. W. G. Whiteside presided at the session.

Dr. Golden gave a very interesting report of a method of treating syphilis, as described by a paper at Fairmont during the state meeting. The lecturer gave as his opinion that neoarsphenamine was to be preferred to salvarsan, as safer, freer from reaction, and equally effective. The method was to use the neoarsphenamine to be followed by injections of bismuth and oil, then mercury; the course consuming three months' time. Then repeat the treatment for three years. He called attention especially to the fact that a negative Wassermann can not be relied upon as a positive proof of the absence of syphilis. He therefore warned against hasty diagnosis until thorough and repeated tests were made. Dr. Golden pointed out that the matter of cost

is a serious problem which should be worked out by the patient and the physician.

Dr. Condry read a well-prepared paper on "When is Gonorrhea Cured?" This paper was so apt and so concise that it was sent to the state journal for publication.

Dr. W. G. Harper of Elkins gave a very interesting talk on Epididymitis, which was stated to be most generally due to gonorrheal infection.

During the business session of the Elkins meeting the following resolution was adopted: "*Resolved*, that the secretary be directed to write the legislative committee of the West Virginia State Medical Association, urging them to secure the enactment of a law placing automobile accidents under a plan of state compensation, as regards physicians and hospitals."

Those present at the meeting were: Dr. W. E. Whiteside of Parsons, Dr. C. H. Hall of Elkins, Dr. O. L. Perry of Elkins, Dr. O. L. Hamilton of Vanwood, Dr. B. I. Golden of Elkins, Dr. W. W. Golden of Elkins, Dr. S. G. Moore of Elkins, Dr. A. S. Bosworth of Elkins, Dr. A. P. Butt of Elkins, Dr. W. G. Harper of Elkins, and Dr. J. C. Irons of

Horton. Visitors present were Dr. R. J. Condry and Dr. D. C. Gordon.

The meeting adjourned to meet later in Barbour county, the time and place to be selected by Dr. Hamilton and Dr. Williams.

J. C. IRONS, Secretary.

Central West Virginia

The Central West Virginia Medical Society met in the parlors of the Oakland Hotel, Webster Springs, on July 18, 1928. After disposing of the routine business, Dr. Karl H. Trippett, of Glenville, was elected to membership.

The scientific discussion of the evening was provided by Dr. H. L. Robertson, F.A.C.P., and Dr. R. K. Buford, F.A.C.S., both of Charleston. First, Dr. Robertson read a very instructive paper on "The Medical Management of Goiterous Conditions." This was discussed by Drs. E. T. W. Hall, C. C. Carson, and M. T. Morrison. Then Dr. Buford read a very excellent paper on "Surgical Goiter." Discussion followed by Drs. H. S. Brown, M. T. Morrison, E. T. W. Hall, and J. A. Rusmisell.

The following ladies were present and effected the organization of the Central West Virginia Medical Society Women's Auxiliary: Mrs. M. T. Morrison of Sutton, Mrs. S. P. Allen and Mrs. J. B. Dodrill of Webster Springs, Mrs. Fred Fisher and Mrs. O. O. Eakle of Sutton, Mrs. E. S. Frame of Fenwick, Mrs. Hugh Dunn of Richwood, Mrs. J. A. Rusmisell, Mrs. L. H. Trippett and Mrs. S. S. Hall of Buckhannon.

Officers were elected for the ensuing year as follows: Mrs. S. S. Hall, president; Mrs. J. B. Dodrill, vice-president; Mrs. C. Fred Fisher, secretary-treasurer.

The physicians present at the meeting were Dr. Robertson, Dr. Buford, Dr. E. T. W. Hall of Weston, Dr. M. T. Morrison of Sutton, Dr. H. S. Brown of Sutton, Dr. O. O. Eakle of Sutton, Dr. J. B. Dodrill and Dr. S. P. Allen of Webster Springs, Dr. Karl H. Trippett of Glenville, Dr. C. C. Carson of Gassaway, Dr. C. Fred Fisher and Dr. Hugh Dunn of Richwood, Dr. D. G. Caudy of Tioga, Dr. E. S. Frame of Fenwick, Dr. L. O. Hill of

Camden-on-Gauley, and Dr. L. H. Trippett, Dr. J. A. Rusmisell, and Dr. S. S. Hall, of Buckhannon.

The meeting adjourned at 10:15 p.m. to a delightful banquet in the banquet room of the Oakland Hotel.

S. S. HALL, Secretary.

Fayette County

The Fayette County Medical society held its monthly meeting in the auditorium of the high school building at Montgomery, Tuesday, August 14, at 8 p. m. The meeting was presided over by Dr. H. A. Walkup, president, of Mount Hope.

The scientific program was furnished by Dr. C. A. Ray, president of the West Virginia State Medical Association and the staff of physicians from the Kanawha Valley Hospital, of Charleston. Dr. G. A. Smith, of the Montgomery clinic department of eye, ear, nose and throat presented a case of Carcinoma of the Aesophagus in a man 54 years old and demonstrated the method of alleviative treatment in such inoperable cases.

Dr. A. A. Shawkey read an interesting paper on the subject, "Colic in Infants." Dr. J. Ross Hunter had for his subject "Consideration of Fractures," discussed by Dr. T. M. Barber, of Charleston, and also discussed at length by Dr. C. W. Stallard, head of the section of Orthopedics of the Montgomery Clinic and Coal Valley hospital. Dr. G. G. Irwin, of Charleston, read a paper on "Pyelonephritis." Dr. Irwin's paper was discussed by Dr. M. C. Borman, of the department of medicine of the Montgomery clinic. Dr. Borman stressed the importance of clearing up all foci of infection in the treatment of these cases.

Dr. W. W. Point, of Charleston, had for his subject "Analgesia in Labor," which was discussed by Dr. C. L. Woodbridge.

Dr. C. A. Ray, in his closing talk, stressed the importance of the physicians of the state participating in the group insurance-plan now offered thru the West Virginia Medical association.

Brooke County

Dr. J. C. Shultz, of Wellsburg, was elected president of the Brooke County Medical Society at a meeting held there on June 7. Dr. Schultz will succeed Dr. George W. Abersold, who served during the past twelve months.

Other officers elected at the June 7 meeting of the Brooke County society were: Dr. J. P. McMullen, vice-president, and Dr. W. J. MacDonald, secretary-treasurer, both of Wellsburg. The retiring secretary of the Brooke society is Dr. Harry F. Nolte, of Beech Bottom. W. J. MACDONALD, Secretary.

HOSPITAL NOTES

Hospital Costs

Although costs of medical and hospital care have risen since 1913, they have not increased anything like the costs of operation of the hospital, nor in proportion to cost of other public services, according to a report of a recent survey received by the Bureau of Labor Statistics, Department of Labor, and just made public by the bureau. The report notes the desire of hospital managements "to operate these institutions so that they will be of maximum benefit to the community."

A summary of the survey, as made public by the Bureau of Labor Statistics, follows:

Much interest is being manifested at the present time in the problem which the wage earner is obliged to meet when confronted with serious sickness either by himself or of members of his family, the belief seeming to be quite general that the costs of medical and hospital care are excessive and present an unfair burden to the person of average means. In an article in the *Modern Hospital*, June, 1928, by John A. McNamara entitled "Correct those wrong ideas," the writer presents figures and arguments to show that the belief that hospitals are badly managed and operate at unreasonable high costs is not justified by the facts.

It is estimated that 110,000,000 of the 120,000,000 people in the United States pass through the hospitals each year, so that the average citizen may expect to visit the hospital once in 12 years; if he is the head of the average family of four he may expect to have a hospital bill for some one of the family on an average every three years. It is estimated that the average hospital cost, including the physician's fee and special nurse is \$300, so that the allowance for sickness in the annual budget would be only \$100 a year.

Considerable publicity, the writer states, has been given recently to statements that hospitals are charging too much, that they are badly managed, and that superintendents are inefficient. In order to ascertain, therefore, whether costs are actually too high, figures were secured from a number of large hospitals as to the operating costs and the charges to the patients in 1913 and 1926.

Costs were obtained from four hospitals in Chicago, all of which do a large amount of free work, while none of them receive grants from the municipality, state, or government, and in all of them the executives are paid adequate salaries. In 1913 the average per capita cost per day in these four hospitals was \$2.83, which had risen in 1926 to \$6.65, an increase of 135 per cent. One of these hospitals charged \$2 per day for its ward beds in 1913 and \$4 in 1926, an increase of 100 per cent, and the charge for private rooms had increased from a range of \$4 to \$8 per day in 1913 to a range of \$6 to \$10 in 1926, or only 33 per cent. The average increase for both types of service amounted, therefore, to only 66 per cent as compared with an increase of 135 per cent in the cost of operating the four hospitals.

The average length of stay per patient had been reduced, moreover, from 15 days in 1913 to 12 days in 1926, with the result that a patient using the highest-priced room in 1913 would have paid \$120 for his 15-day stay, while in 1926 a patient using the same room at \$10 a day would have paid exactly the same amount, \$120, for a stay of 12 days. These figures do not, how-

ever, include charges for special treatments, but investigation has shown that these special services do not add on an average more than \$50 to the hospital bill. Summing up these figures, the writer says:

"Costs have increased 135 per cent; charges have increased a maximum of \$50 or approximately 42 per cent due to special charges; patients have been returned to society three days earlier than previously, thereby causing an economic saving to industry of approximately \$15 represented by the average earning power per man. If this can be logically deducted from the increased cost, the increase is but 29 per cent."

Study of Costs Confirmed

A further study of costs in seven hospitals in different parts of Pennsylvania confirmed the results of the Chicago study. The average cost per patient in these institutions in 1913 was \$1.98 per day, which in 1926 had increased to \$4.41, an increase of 123 per cent. The charge for a bed in a ward increased from \$1.63 in 1913 to \$3.15 in 1926, or 88 per cent, in both cases this charge being less than cost. The average maximum charge for a private room in the seven hospitals in 1913 was \$5 and in 1926 \$9.07, the increase amounting to 81 per cent. As in Chicago the reduction in the average time spent in the hospital has also operated to reduce the costs, so that it is estimated that the cost to a patient in the highest-priced room for the average hospital stay had been reduced from \$72 in 1913 to \$70 in 1926.

In contrast to these reductions in the cost of hospital service, the writer points out the increases in the cost of various other public services. Thus it has been shown public-school taxation had increased in 146 cities of more than 30,000 population an average of 207 per cent since 1916, the cost of health and sanitation departments had advanced 156 per cent, while charities and hospitals including correctional institutions

show an increase of only 114 per cent, by far the smallest amount.

Although it appears from the figures quoted that the public is in error in believing that hospital costs have advanced unreasonably, there is evident a desire on the part of the management of different hospitals to operate these institutions so that they will be of maximum benefit to the community. In the same issue of the *Modern Hospital* (pp. 61, 62) an account is given of the plans of a hospital in Grand Rapids, Mich., for standardizing and reducing costs.

Laboratory and X-ray work are playing an increasingly important part in the diagnosis of disease, and since all these facilities are available in a hospital physicians frequently have their patients go to a hospital for a short time for observation and examination. As the amount of laboratory and other work varies with the case, it is impossible to determine beforehand the cost to the patient, and this uncertainty undoubtedly keeps many patients from availing themselves of this service.

To meet this situation, therefore, the board of trustees of the hospital established a flat rate of \$25 for a two days' stay if the patient is in a ward and \$35 if he occupies a private room, this rate covering all services in connection with the diagnosis asked for by the physician. The desirability of making the benefits of hospitalization in maternity cases available to a larger number has also been recognized by the management, and flat rates covering all expenses during the average 10-day stay in the hospital for this class of cases have been fixed for ward patients and those in semiprivate or private rooms. Through these and other plans which have not yet been put into effect, it is considered that the field of usefulness of the hospital can be greatly extended.

GENERAL NEWS

College of Surgeons

The American College of Surgeons will hold the eighteenth Clinical Congress in Boston, October 8-12. Headquarters will be at the Statler Hotel and meetings will be held in the ballroom of the Copley-Plaza Hotel and Symphony Hall. The Hospital Standardization Conference will be held in morning and afternoon sessions in the ballroom of the Copley-Plaza Hotel, Monday, Tuesday, Wednesday, and Thursday. An innovation this year will be the commencement of the clinics in the Boston hospitals on Monday afternoon, continuing through the mornings and afternoons of the following four days.

Monday evening's program will include an address of welcome by the local chairman, the address of the retiring president, Dr. George David Stewart, New York, the inaugural address of the new president, Dr. Franklin H. Martin, Chicago, and the John B. Murphy oration on surgery by Professor Vittorio Putti of Bologna, Italy. Tuesday, Wednesday and Thursday evenings' sessions will be held in the ballroom of the Copley-Plaza Hotel. At the Wednesday evening meeting the visiting surgeons will be the guests of the Boston Surgical Society at a special meeting when the Bigelow medal is to be awarded. On Friday evening the annual convocation of the college will be held in Symphony Hall, when the 1928 class of candidates for fellowship in the college will be received. The fellowship address on this evening will be delivered by Dr. William J. Mayo. The annual meeting of the governors and fellows will be held Friday afternoon and will be followed by a symposium on Traumatic Surgery to be participated in by leaders in industry, labor, indemnity organizations and the medical profession.

Ether Day will be celebrated in the Dome Room of the Massachusetts General Hospital on Friday, when a bronze bust of William T. A. Morton will be presented to the hos-

pital. It was in this building that ether was first administered for the production of surgical anesthesia on October 16, 1846. Several newly completed medical motion pictures produced under the supervision of the American College of Surgeons and approved by it will be shown during the congress. Reduced fares on the railways of the United States and Canada have been authorized to those holding a convention certificate, so that the total fare for the round trip will be one and one-half the ordinary first-class one-way fare. Other outstanding features will be the exhibits. In addition to the commercial exhibits the departments of the college will present scientific exhibits. A number of distinguished foreign guests of international reputation have signified their intention of attending. The chairman of the Boston committee on arrangements is Dr. Frederic J. Cotton.

Hugh Strachan, M.D.

Dr. Hugh Strachan, of Blaine, W. Va., a member of the Grant, Hampshire, Hardy, Mineral County Medical Society, died at the Western Maryland Hospital at Cumberland, Md., on July 2, following an operation for appendicitis. Dr. Strachan was 53 years of age and was admitted to practice in West Virginia in 1903.

The deceased graduated from Maryland Medical College at Baltimore and came immediately to West Virginia, where he continued in active practice until the time of his death. He became a member of the West Virginia State Medical Association in 1922.

William U. Charleton, M.D.

Dr. William Underdown Charleton died at his home at Wheeling, W. Va., July 14, 1928, after a few months' illness of myocarditis and coronary sclerosis.

The oldest son of Dr. Alonzo P. and Eva Underdown Charleton, who were of the old

Quaker stock of the state's first settlers, he was born in Chester county, Pennsylvania, December 14th, 1884. After completing college work, he began his medical education at Medico-Chi, Philadelphia, Pa., but completed his course and graduated from the University of Maryland, in June, 1908. He practiced his profession in Chester county and Philadelphia until 1913, when he accepted an appointment as assistant medical examiner with the Baltimore and Ohio Railroad Company. He was promoted to medical examiner at Fairmont, W. Va., in 1918, and in 1920 he came to Wheeling, W. Va., as examiner, which position he held until his death.

He was married to Miss Mary B. Bostwick, of Cambridge, Ohio, who survives him, August 27th, 1914. He was affiliated with the Masonic fraternity, being a member of the Blue lodge at Cochranville, Pa., and the Scottish Rite and Shrine at Wheeling, W. Va.

As a doctor he was capable and painstaking and as a man he was favorably considered by all who knew him—always good-humored, always obliging, always fair. At one or another time of his life he had been active in all kinds of sports. Locally he was known as one of their best at trap shooting and no meeting was complete without Dr. Charleton. His death is sincerely regretted by all of his acquaintances.

William C. Kelly, M.D.

Dr. William C. Kelly, of Morgantown, an honorary member of the West Virginia State Medical Association and treasurer of the Monongalia County Medical Society, died suddenly in his office about noon, Saturday, August 4, from a heart attack. His failure to return to his home for lunch on that day caused his wife some uneasiness, and he was found dead in his office a short time later.

Dr. Kelly was born in Mt. Pleasant, Pa., on January 7, 1855, and was the son of Dr. Samuel Kelly and Mary A. Cunningham Kelly. He moved to Morgantown with his parents while still a child and his father practiced his profession in Morgantown until the Civil War, when he enlisted in the Union

army. His son, the deceased, received his early education in the old Monongalia Academy and later was graduated from the Bellevue Medical School in New York and the College of the City of New York, as well as the medical department of New York University.

He was married on December 24, 1881, to Bertha Blanche Kendall, who, together with one son, Samuel Kelly, survives. Dr. Kelly practiced his profession in Morgantown for 43 years and, in addition to his connection with the state association, was president of the Monongalia County Historical Society until his death. Funeral services were held from the Methodist Protestant Church in Morgantown on August 6 and interment was made in the East Oak Grove cemetery there.

John B. Winfield, M.D.

Dr. John Buckner Winfield, of Clarksburg, W. Va., died June 5, 1928, at his country home at Fairfax, Va., after a long illness from cardio-vascular disease. He was 52 years of age.

Dr. Winfield was born in North Carolina, but his family moved back to Virginia, his parents' native state, soon after the birth of this child. Dr. Winfield was graduated from The Medical College of Virginia in 1897 and spent the following year as interne in the Retreat for the Sick in Richmond. He then located at Johnstown, W. Va., and soon developed an extensive practice in that rural community. About 1910 he located in Clarksburg. Within the following ten years he did post-graduate work in obstetrics and pediatrics at different times in the Harvard Medical School and the Washington University Medical School. The last ten years or so of his practice was devoted chiefly to the specialties just mentioned.

Dr. Winfield was a member of Harrison County Medical Society, The West Virginia State Medical Association, The American Medical Association, and The Southern Medical Association.

With his genial, cheery disposition, Dr. Winfield made many warm friends both in and out of the sickroom. The writer had opportunity to observe his practice closely the last five years he was able to work. His

practice during that time was very large. His patients impressed the observer with their great confidence in their physician. He was to them both medical counsellor and friend. By this relationship he typified the admirable traits of the rapidly passing, old-time general practitioner.

B. S. B.

Tri-State to Meet

The program for the coming meeting of the Central Tri-State Medical Society, which will be held at the Hotel Pritchard, Huntington, on September 20, has just been announced and includes the names of Dr. Verne C. Hunt, chief of the surgical section of the Mayo Clinic, Rochester, Minn., Dr. T. H. Weisenburg of Philadelphia, professor of neurology and psychiatry of the graduate school of the University of Pennsylvania, and Dr. Edward Speidel, of Louisville, Ky., professor of obstetrics of the University of Louisville. A fourth essayist on children's diseases will probably be added to the program within the next few days.

Dr. Hunt of the Mayo Clinic will read a paper on "Factors of Importance in the Treatment of Surgical Lesions of the Urinary Tract," and Dr. Weisenburg's paper will be on "Some Recent Advances in the Diagnosis and Treatment of Nervous Diseases." Dr. Speidel will read a paper on "Obstetrical Emergencies in the Home."

The program will get under way promptly at 2 o'clock on Thursday afternoon, September 20, and three of the scientific papers will be presented during the afternoon. A banquet dinner will be served at the Pritchard between the afternoon and evening sessions. Dr. F. O. Marple, of Huntington, secretary of the Central Tri-State Society, expects the enrollment for the September 20 meeting to be the largest in the history of the organization.

David A. Thomas, M.D.

Dr. D. A. Thomas, aged 74 years, of near Red House, Putnam county, West Virginia, died recently at his home. Dr. Thomas retired from active practice several years ago and was not connected with the state association, although he was widely known

throughout the section in which he lived. The deceased graduated from the Hospital College of Medicine of Louisville, Ky., in 1880, and was licensed to practice in West Virginia the same year. He is survived by his wife, four children and three sisters, all of Red House.

John F. Trahern, M.D.

Dr. John F. Trahern, of Belington, W. Va., died there recently of cerebral hemorrhage and arteriosclerosis. He was born in 1847 and was 81 years of age at the time of his death. Dr. Trahern began the practice of medicine in West Virginia before the medical practice laws were in existence, but was later licensed upon the presentation of his diploma. He had not been in active practice for the past few years.

Post-Graduate Assembly

The program for the Interstate Post-Graduate Assembly, which will be held at Atlanta, Ga., in October, 1928, has just been completed, according to a recent announcement by Dr. Marion T. Benson of Atlanta, general chairman. More than one hundred teachers of medicine and surgery will appear on the program, which has been made up under the direction of Dr. George W. Crile of Cleveland.

The program will open on Friday and Saturday, October 12 and 13, when the Atlanta physicians and surgeons put on two days of clinics to be held at the Wesley Memorial Church. Approximately thirty doctors will appear in this program. On Monday morning, October 15, the Interstate assembly will open and continue through Friday, October 19. On Saturday, October 20, an old-fashioned barbecue will be given at noon by the Atlanta doctors and the afternoon will be featured by a football game between Georgia Tech. and Notre Dame at Tech. stadium.

Dr. Benson has pointed out that the assembly will be an intensified post-graduate course open to all members in good standing of their county and state medical societies. A registration fee of \$5 will be the only assessment connected with the meeting. The complete program, which is now being published, will be mailed out in the next few weeks.

WOMAN'S AUXILIARY

National Officers

The new officers of the Woman's Auxiliary of the American Medical Association, announced following the Minneapolis meeting, are as follows:

President, Mrs. Allen H. Bunce of Atlanta, Ga.

President-elect, Mrs. George H. Hoxie of Kansas City, Mo.

First Vice-President, Mrs. Evarts V. DePew of San Antonio, Texas.

Secretary, Mrs. M. T. Edgerton of Atlanta, Ga.

Treasurer, Mrs. Irvin Abell of Louisville, Ky.

Directors: Mrs. John O. McReynolds of Dallas, Texas; Mrs. Wayne W. Babcock of Philadelphia, Pa.; Mrs. A. Haines Lippincott of Camden, N. J.; Mrs. F. P. Gangenbach of Denver, Colorado; Mrs. William E. Parke of Philadelphia, Pa., and Mrs. J. T. Christian of Minneapolis, Minn.

New State Auxiliary

The newest addition to the Woman's Auxiliary of the West Virginia State Medical Association was formed at Webster Springs, Braxton county, on the evening of July 18, when the ladies of the Central West Virginia Medical Society inaugurated a permanent organization. Mrs. S. S. Hall, of Buckhannon, was elected president of the new Auxiliary; Mrs. J. B. Dodrill, of Webster Springs, was elected vice-president, and Mrs. C. Fred Fisher, of Richwood, was elected treasurer.

Considerable interest was in evidence at the Webster Springs meeting and the Central West Virginia Auxiliary has already started out as an active unit. Their next meeting will be held at Richwood on the evening of September 19.

President's Letter

Mrs. B. S. Preston, of Charleston, past president of the state Auxiliary, has recently received an interesting communication from Mrs. Allen H. Bunce, of Atlanta, Ga., the present president of the Woman's Auxiliary

of the American Medical Association. Mrs. Bunce, according to her letter, is particularly interested in the annual meetings of the Auxiliary.

In connection with the annual meetings, Mrs. Bunce believes that the Auxiliary should have more extensive by-laws outlining the duties of the various committees and that the business of the Auxiliary should be transacted by a house of representatives, leaving much time for the state reports and health education meetings.

In connection with the 1929 meeting at Portland, Oregon, Mrs. Bunce stated that she conferred with the Oregon representatives before leaving Minneapolis and that they agreed, first, to withhold all social activities until the business program was out of the way, and, second, that all meetings should be held in a centrally located spot.

Kanawha Auxiliary

A meeting of the Woman's Auxiliary to the Kanawha Medical Society was held in June at the home of Mrs. John Cannaday of Charleston. There were about 30 members present. Following a short business session, Dr. W. A. Thornhill of Charleston gave a very interesting talk on X-ray therapy. His talk was accompanied with lantern slides. Several other meetings of the Kanawha Auxiliary are scheduled for later in the summer.

Personal Mention

Mrs. R. V. Shanklin, of Gary, president of the state Auxiliary, has recently returned from an extensive automobile trip.

Mrs. B. S. Preston, of Charleston, has returned from a visit to her home in Tennessee.

Mrs. E. Bennette Henson, of Charleston, is visiting with friends in Indianapolis, Ind.

Mrs. W. F. Shirkey, of Charleston, has just returned from a trip to Baltimore.

Information Desired

The secretaries of all of the local auxiliaries are requested to send a complete list of their officers and reporters to Mrs. T. M. Barber, 915 Crescent Road, Charleston, W. Va.

The West Virginia Medical Journal

Directed and Edited by the Committee on Publication

[The Committee on Publication is not responsible for the authenticity of opinion or statements made by authors or in communications submitted to this Journal for publication. The author or communicant shall be held entirely responsible]

JAMES R. BLOSS, *Editor-in-Chief* - - - - - Huntington

ASSOCIATE EDITORS:

WALTER E. VEST
Huntington

HARRY M. HALL
Wheeling

J. HOWARD ANDERSON
Martown

C. A. RAY
Charleston

MR. JOE W. SAVAGE, *Secretary-Business Manager*, Charleston

Entered as Second Class Matter, January 1, 1926, at the Postoffice at Charleston, West Virginia

Volume XXIV

OCTOBER, 1928

Number 10

THE TREATMENT OF DIABETES MELLITUS *

By ELLIOTT P. JOSLIN, M.D.

Boston, Massachusetts

UPON inauguration of the treatment of a case of diabetes the doctor should remember that the patient is destined to live a decade or more and, unless thoroughly instructed in the nature and management of his disease, he will heed the advice of friends and fellow-patients and wander from physician to physician until he finds that one who will take the time to teach him, and answer his questions, and lay out a future course of treatment which appeals to his common sense. If the physician has not the time, inclination or knowledge to do this himself, his own reputation with that particular patient and all his relatives will stand higher in the end by referring him at once to some doctor who knows more about the disease and is willing to take the entire or joint responsibility for his care, than to have him go to some one who may know less or to an irregular practitioner.

Already the introduction of insulin has allowed my patients to live about twice as long as formerly, and experience with these cases of prolonged duration convinces me

that, on the whole, the disease grows milder as its duration lengthens, that the overwhelming majority of the deaths which have hitherto shortened the lives of diabetics are preventable, and that arteriosclerosis, which is the cause of half the present diabetic mortality, at least can be deferred, and that diabetic coma can be completely eliminated.

Diabetic coma disappeared as a cause of death among 245 diabetic children during the 12 months ending July 1, 1927, notwithstanding that prior to insulin all such children died of it on the average within three years of the onset of their disease. This result was obtained through the use of insulin and instructions to these patients, scattered throughout the United States and Canada, (1) to call their doctor if they felt "sick," and until he arrived (2) to go to bed, (3) drink a cupful of hot liquids every hour, (4) secure some one to wait upon them and thus save their strength, (5) take an enema, and (6) keep warm.

Diabetic gangrene and infections of the lower extremity are to be blamed for about one-fourth of all Boston diabetic deaths. Our

* Read before the West Virginia State Medical Association at Fairmont on May 23, 1928.
From the N. E. Deaconess Hospital, Boston.

trained Deaconess Hospital diabetics seldom develop gangrene, because they are taught to keep their feet as clean as their faces—a quaint idea, but worthy of promulgation.

Demonstrate to the diabetic at the beginning of treatment the Benedict test for sugar so that he can see for himself whether your advice is good or bad. Show him his positive test and later let him experience the thrill of proving himself sugar-free. If he disregards his diet and sugar shows in his urine, he will know he has done wrong; if he disregards your diet and sugar does not show in the urine, he will probably tell you, and you must listen and explain why it does not appear and then utilize your patient's dietetic experiment for his own good and let him see you are open-minded and willing to study his disease along with him. A doctor must be alert to discover the improvement of his diabetic patient, if he wishes him to gain in tolerance for carbohydrate.

At the outset it is desirable not only to teach the value of the examination of the 24-hour urine, but also the advantage of testing the urine during the four periods of the day—morning, afternoon, evening, and night. This is unnecessary daily, but is indicated whenever treatment gives unsatisfactory results. In this way it will be possible to adjust diet and insulin between the three meals according to the outcome of the Benedict tests. Even if a diabetic patient can not read or write, he can do the Benedict test.

Diet Card.—There is no such thing as a standard diabetic diet. Each patient needs his own individual diet, which he should understand is always for temporary use and requires alteration every day, week, month, or year. The disease does not remain stationary, and the patient should realize why he should return for your advice. Give him a diet card with specific directions. Unless you give him a list of food values with which you are familiar, he will secure one of his own and it will be necessary for you to become familiar with that. Be careful! Select

a diet card which is simple, compact, can be carried in the pocketbook, and don't betray your ignorance or indifference by tearing a diabetic-diet-list leaf from the book of a drug supply house which has not revised its diabetic diet for a generation. Until you see a better, or have devised your own, diet card, I recommend the following, which contains about all the food values my patients need to know, because from this list they can make shrewd guesses about the values of other foods:

TABLE 1.
Carbohydrate, Protein and Fat and Calories in Common Foods.
Quantity: 80 Grams = 1 ounce.

Food	Carbo- hydrate Grams	Protein Grams	Fat Grams	Calories in Common Foods
Vegetables 5%.....	1	0.5	0	6
Vegetables 10%.....	2	0.5	0	10
Shredded Wheat (3 triscuits)	23	3	0	104
Uneds, 2 (6 to 1 oz.)	10	1	1	53
Potato.....	6	1	0	28
Bread.....	18	3	0	84
Oatmeal, dry wgt.....	20	5	2	118
Oysters, six.....	4	6	1	49
Milk.....	1.5	1	1	19
Meat (cooked, lean).....	0	8	5	77
Fish.....	0	6	0	24
Chicken (cooked, lean).....	0	8	3	59
Egg, one.....	0	6	6	78
Cheese.....	0	8	11	131
Bacon.....	0	5	15	155
Cream, 20%.....	1	1	6	62
Cream, 40%.....	1	1	12	116
Brazil Nuts.....	2	5	20	208
Butter.....	0	0	25	225
Oil.....	0	0	30	270

TABLE 2.
Foods Arranged Approximately According to Content of Carbohydrate.

5% Carbohydrate		
Lettuce	Dandelions	Eggplant
Cucumbers	Swiss Chard	Cabbage
Spinach	Celery	Radishes
Asparagus	Mushrooms	Leeks
Rhubarb	Tomatoes	String Beans
Endive	Brussels Sprouts	Broccoli
Marrow	Water Cress	French Artichokes
Sorrel	Sea Kale	
Sauerkraut	Okra	Ripe Olives
Beet Greens	Cauliflower	Grapefruit
10% Carbohydrate		
String Beans	Green Peas	Potatoes
Pumpkins	Jerusalem Arti- chokes	Shell Beans
Turnips	Parsnips	Baked Beans
Kohl-Rabi	Lima Beans	Green Corn
Squash		Boiled Rice
Beets		Boiled Macaroni
Carrots	Raspberries	
Onions	Currants	Plums
Green Peas	Apricots	Bananas
	Pears	Prunes
Strawberries	Apples	
Lemons	Blueberries	
Cranberries	Cherries	
Peaches		
Pineapple		
Blackberries		
Oranges		

Diabetic Records.—Unless a doctor has before him upon a single line of a single sheet

TABLE 3.

No.	NAME						HOSPITAL							
DATE	VOL. C.C.	SP. GR.	ALB.	DIACETIC ACID	SUGAR IN URINE REDUC- TION %	URINE TOTAL G.	DIET IN GRAMS C. P. F.			CAL- ORIES	NAKED WEIGHT, LBS.	NON- PROTEIN NITROGEN	BLOOD SUGAR, %	INSULIN UNITS, TIME GIVEN

the result of the analysis of the urine for sugar (preferably also of the blood, though at less frequent intervals), the composition of the diet, either accurate or approximate, and a record of insulin used, he can never make satisfactory progress in the treatment of his patient. In this way comparisons can be instituted from day to day or year to year. The more intelligent patients always use and bring their charts, which they often design for themselves. An example of such is shown in Table 3.

The Dietetic Treatment of Diabetes.—Complete diabetes I do not see, and consequently I seek to discover the tolerance of the patient for carbohydrate. In the process of doing so I try to develop this tolerance to the utmost by gradually relieving the load thrust upon the pancreas by nature's crude attempt and failure through polyphagia to secure enough food for bodily needs in addition to that lost in the urine. Overeating brings on diabetes in the adult just as overgrowth favors it in the child. Every one agrees that the diabetic must never be overfed, and particularly so at the beginning of treatment. It is advantageous temporarily and at the start to make use of mild undernutrition, which experience before insulin taught us all worked so well in rendering the urine sugar-free. Within one week the diet can be raised to a maintenance value, and in the meantime the gastrointestinal tract of the patient is not suddenly shocked by the increase of fat calories to make up for the inevitable reduction in carbohydrate calories. When the patient first arrives for treatment it may seem as if he had no tolerance for carbohydrate, but if protein is kept at a reasonable amount—about one gram per kilogram body weight for adults, 2 to 3 grams for children—carbohydrate reduced to 100 grams and with fat the total calories brought up to 20 calories per kilogram, successive days will show decreasing sugar in the urine and improvement in tolerance, which, it is true, can be hastened by the use of insulin. One can promptly determine whether the carbohydrate should be lowered toward 50 grams, a level below which I no longer go, or raised to 150, 200, or, very rarely, to 250 grams, the latter figure being not much below what the average man

or woman eats whose weight is 60 kilograms, 132 pounds, naked.

A higher carbohydrate diet at the beginning of treatment does not appeal to me, because in diabetes one is dealing primarily with a disease of disturbed carbohydrate metabolism and it is rational to spare the overworked carbohydrate function of the islands of Langerhans and allow these to recuperate. A lower carbohydrate diet likewise is obnoxious, because upon it, in the first instance, the diabetic can not disclose his true tolerance; in the second, he is deprived of the opportunity to show an improvement in the same, and, thirdly, a disused function retrogrades rather than improves.

The Preliminary Diet.—Plain foods, universally obtainable, which will form the basis of the diabetic's diet for life, should compose the preliminary diet. These should furnish bulk, such as 5 per cent vegetables, first for satisfaction and second because carbohydrate administered in low concentration is better utilized than when given in highly concentrated form. Fruit is indicated, because it relieves the monotony, replaces desserts, and partly because its carbohydrate content is so easily learned by the patient. Thus, grapefruit contains 5 per cent, orange 10 per cent, a banana 20 per cent carbohydrate. A half grapefruit contains about 10 grams carbohydrate, a really small orange 10 grams, and the average banana 20 grams. Uneda biscuits are desirable, because each happens to contain 5 grams carbohydrate which, for demonstration purposes, every patient should know is the exact weight of a buffalo nickel. Oatmeal is two-thirds carbohydrate, and a liberal saucerful, cooked, amounts to 20 grams—slightly less than in a shredded wheat biscuit, which contains 23 grams. Cream contains one gram carbohydrate per 30 grams or ounce. The values for protein and fat in these foods, and in eggs, meat, butter, and cheese, are all shown in Table 1.

The patient's full diet is usually attained by the end of the first week, but at the beginning the quantity of cream is one quarter of a pint, 4 ounces, 120 c.c., instead of one-half a pint.

TABLE 4.
Diabetic Diet Susceptible of Easy Modification.

	Carb. 20 *	Prot. 10	Fat 0
5% Vegetables, 4 saucerfuls..... (20 ounces, 600 grams.)			
Oranges, 3 small..... (300 grams.)	30	0	0
Oatmeal, 1 saucerful, cooked..... (30 grams dry, 240 grams cooked.)	20	5	2
Uneda biscuit, 2 biscuits..... (12 grams.)	10	2	0
Cream (20% butterfat), ½ pint..... (8 ounces, 240 grams.)	8	8	48
Eggs, 2.....	0	12	12
Meat (cooked), 60 grams.....	0	16	10
Bacon (cooked), 30 grams.....	0	5	15
Butter, 60 grams.....	0	0	25
	88	53	102
	4	4	9
	352	212	918

Total calories, 1482.

* 5% vegetables vary in content of carbohydrate from 2 to 5%; arbitrarily, a mixture of 4 portions is estimated to be on the basis of about 3% or 1 gram carbohydrate per ounce.

The division of the diet between the three meals is such that less than a third of the carbohydrate is given for breakfast and the remainder allotted to noon and night.

The above diet would furnish nearly 30 calories per kilogram for the individual weighing 50 kilograms, 110 pounds, naked, or 25 calories per kilogram for the one whose weight is 60 kilograms (132 pounds). Without changing the carbohydrate at all, an addition of meat 60 grams would add 150 calories, butter, 30 grams, 225 calories, and changing the cream to that of 40 per cent butterfat strength, 432 calories. Combine all these and they would represent a total increase of protein of 16 grams and of fat 83 grams, 811 calories.

The total glucose value of the original and modified diets would be as shown in Table 5. Personally, I am not impressed with the utility of estimating the total glucose in the diet.

TABLE 5.
Total Glucose.

Carbohydrate.....	88 grams	$\times 1.00 = 88$	88	$\times 1.00 = 88$
Protein.....	53 grams	$\times 0.58 = 31$	69	$\times 0.58 = 40$
Fat.....	102 grams	$\times 0.10 = 10$	185	$\times 0.10 = 19$

So high a proportion of fat to carbohydrate as 2 to 1, or, in fact, so high a quantity of fat as the 185 grams of this modified diet in the diabetic diet, I do not advocate. It is seldom necessary to raise the fat above 150 grams, even with individuals whose net weight is 80 kilograms (176 pounds), because with such patients the tolerance for carbohydrate is relatively high or can be kept so with small doses of insulin. Furthermore, because of the high blood pressure of these

individuals and their overweight, their body weight should be reduced. Third, the basal metabolism of such individuals for age, height and sex is low and at work is usually less than 30 calories per kilogram body weight. The basal metabolism of a male, 50 years of age, height 5 feet 7 inches without shoes, is 1,547 calories; and that of a woman of similar age, net weight 70 kilograms (154 pounds), height without shoes 5 feet 4 inches, is 1,393 calories.

By keeping the total calories low and the total calories derived from fat relatively low (and by this is meant not allowing more than 1.0 to 1.5 grams of fat for each 1 gram of carbohydrate), my patients have done the best. The Ann Arbor Clinic, at which low carbohydrate and high fat diets have been employed, has done all diabetics a service in recording the absence of any gain in tolerance for carbohydrate by their methods in five reliable patients studied over periods of 32 to 45 months.*

In contrast to their experiences with the low carbohydrate, low protein and high fat diets can be placed my own, more favorable experience with a more liberal carbohydrate and protein, but smaller fat diets, and specifically with five also reliable patients.†

If the weight of the patient is above normal and he is over 35 years of age, it is as desirable to reduce it as in any non-diabetic individual. But rapid loss of weight is contraindicated, because that would mean the substitution of body fat for food fat and then the patient would be living upon a high fat diet. An excess of body fat in the diet is almost as bad as an excess of extraneous food fat.

One of the harmful effects of a high fat diet, particularly if associated with a diet containing less than 100 grams of carbohydrate, appears to be its production of premature arteriosclerosis. I believe this, but I await the reports of the incidence of arteriosclerosis in those clinics where large quantities of fat have been fed, as in Lund, Sweden, and Ann Arbor in this country.

Insulin.—With the help of insulin my diabetic children have already lived twice as long as formerly and give every indication of

* Brace: *Annals of Int. Med.*, 1927, 1, 203.

living for years to come. Is not this an unanswerable argument for insulin? At some crisis during his diabetes most every diabetic requires insulin. There are, therefore, excellent reasons for his education in its use when he first comes under observation. Usually I begin it the first day I see the patient, and if, as many do, he can omit it later, so much the better. In this way I try to insure my diabetics against emergencies.

The fundamental reason for the use of insulin is its power to store glycogen. With glycogen in the liver a diabetic is safe; without glycogen in the liver he is in danger from the accumulation of an excess of fat in the liver and accompanying acidosis. The aim of insulin administration, therefore, is to promote the utilization of carbohydrate and to store some of it as glycogen in the liver and muscles. When glycogen is stored the metabolism runs more economically than when it is lacking. Krogh found extremely high as well as extremely low respiratory quotients disadvantageous.

The effect of insulin lasts about 8 hours, and, theoretically, one should give it at 8-hour intervals three times a day. Practically, however, this is not necessary, because most cases of diabetes manufacture enough insulin of their own to provide for the periods at which they are not taking food. It is true, however, that the severer type of patient goes to bed at night relatively mild, because he has glycogen stored in his liver as a result of his day's treatment, but he wakes up severe because his glycogen store has become exhausted. Such a diabetic (often this is a child) requires a few units, 2 to 5, in the late evening to protect him, and in this way he begins the next day as a mild case. No better proof of the advantage of storing carbohydrate in the body by means of insulin is afforded than to observe the course of such a patient in the following 24 hours. These few units at night often obviate the necessity for three times as many units the next day. In reality, in this manner the severe diabetic starts the day as a mild diabetic. In every conceivable way I try to keep my patients mild, and this is one of them.

Small doses of insulin are safer than large

doses. Usually I begin with 2 to 5 units before each meal and increase the quantity as necessary with each successive meal until the urine saved in four-period portions becomes sugar-free upon the diet above described. This entails frequent urinary examinations for sugar, but they can be done qualitatively adjoining the ward by the nurse or at home by the patient. Thereby much time and expense can be saved the patient and the efficiency of the hospital beds increased. Within 36 hours one can determine whether a fourth dose of insulin should be injected at night or the three doses reduced to two by the omission of that at noon. Likewise, one can decide whether dosage should be raised to 10, 15 or 20, rarely 25, units before breakfast. Automatically before the evening meal it is less, still less at noon if used at all, and least of all upon retiring.

The interval between the injection of insulin and the meal is greatest before breakfast, because at that time of the day the blood tends to be highest. Occasionally, to attain best results this period must be an hour. Before the other meals, 20 minutes, more or less, suffice to afford an opportunity for insulin to act and reduce the blood sugar to a normal level at the beginning of a meal and to counteract the rise in blood sugar which is caused by the ingestion of the meal.

The site of injection is not of especial moment, provided it is varied and no two injections are given in the same spot in the course of the month. Therefore I recommend for systematic use the right leg in the morning, the left at night; four parallel lines down the leg for each week of the month and a spot on each of these lines for each day of the week. If other doses are given, utilize the arms or buttocks. Insulin given constantly in one place leads to atrophy of the tissues, is unabsorbed and hence wasted.

Whereas it is legitimate to begin the treatment of a youthful case of diabetes rapidly, that of a patient above the age of 50 should be commenced gradually, and for three reasons: First, his tissues do not accommodate themselves so quickly to the fall in sugar and the changed dietetic regime; second, he is likely to be milder and a little dietetic coaxing will disclose the benign character of the

disease, and, third, I am afraid of the consequences of a sudden lowering of the blood sugar in the coronary vessels of the heart, because the heart muscle especially is dependent upon sugar for its proper action.

Exercise.—Exercise is of paramount importance for the diabetic. Just as diabetes is prone to develop when exercise is given up, so carbohydrate tolerance fails when it is restricted. Glycogen is oxidized in the muscles and their tone must be kept up and their demand for glycogen made urgent. The value of exercise in utilizing and lowering the blood sugar is easily demonstrable. A child is on a constant diet and insulin dosage, but an unusual romp with his father at night brings on an insulin reaction. A game of golf is equal to 5 units of insulin. A Marathon run will bring on the equivalent of an insulin reaction. It is more fun to take exercise, healthier to take exercise, makes one's disposition better to take exercise, and one is better looking for taking exercise, than to take insulin alone. Therefore I tell my patients to exercise, stand erect, be proud of their posture and show off, if they will, because physically all these things will do them good. Of course, I am proud of my diabetic children and intend to make them proud of themselves. They average above other children in height and in mental capacity, and, I rather think, in good looks, and it is right that they should take advantage of these traits to offset their glycosuric handicap.

All my surgical cases, while in bed, have exercise under the supervision of a physical therapist. The value of the exercises with the Buerger board may be partially explained by the exercise it involves. The patient raises his leg with deficient circulation for 3 minutes until the blood runs out of it, lowers it for 2 minutes until the blood runs into it, keeps it horizontal 5 minutes, and repeats the cycle six times an hour and three hours a day.

All diabetics must work physically if they wish to work mentally. Patients do better in the summer time, better in warm climates, better on farms, better on mountain hikes—all because they exercise. We must make our diabetics perfect physically.

Insulin Reactions.—The diabetic must be familiar with the symptoms of an insulin reaction. If he realizes that the same symptoms of hunger, tremor, sweating and unconsciousness, even convulsions, can be brought on by extreme undernutrition and overexercise, it simplifies the problem. Weakness, anxiety, nervousness, diplopia, disorientation, monoplegia, may occur. Convulsions are rare. More essential is it for the patient to know how to stop a reaction. He must carry a few lumps of sugar in his pocket. In the case of a child, the mother must be ready to give an enema of glucose, using karo syrup if she will, or something similar, and it is helpful to know how to use adrenalin, a quarter c.c. or more of a 1:1000 solution.

The Differential Diagnosis Between Hypoglycemia and Diabetic Acidosis.—A wrong conclusion as to the cause of the unconsciousness of a diabetic patient might lead to death. Eleanor's mother believed her commencing unconsciousness after a hard set of tennis was due to acidosis, because the urine contained sugar and acid, and she gave her 20 units of insulin when she was in hypoglycemic collapse. A strange doctor was keen enough to catheterize the bladder; in this second specimen of urine he found sugar and acid absent, made the correct diagnosis and saved Eleanor for the frontispiece of my book as an example of a diabetic child with diabetes of 10 years' duration. Never fail to realize the first specimen of urine you obtain may have been manufactured hours ago.

The history of the case almost always allows a telephone diagnosis between hypoglycemia or coma. The patient with hypoglycemia has eaten too little; the one with acidosis has eaten too much. But analyze the correctness of the data and not be led astray by deficient absorption of food. Hypoglycemia is rare in acute infections, but acidosis is common, because of increased metabolism of body protein and fat. The patient with hypoglycemia has taken too much insulin; the one with acidosis too little; but remember the insulin injected may have gone into scar tissue and not been absorbed. The hypoglycemic patient is more mentally upset, disorientated, and even violent as he becomes stuporous, in contrast to the acidotic patient,

who becomes sicker and sicker as he glides into coma before you hardly realize it has claimed him. Hypoglycemia comes on in minutes even if they do sometimes reach 60 or more; acidosis culminates in coma only after hours and days. The one is sudden, the other gradual. No suffering precedes hypoglycemia, but vomiting and pain in the epigastrium and abdomen generally, even in fully 80 per cent of the cases, usher in acidosis. In hypoglycemia one is never confused by the possibility of appendicitis, gallstones, pancreatitis, or the perforation of a duodenal ulcer, but in coma you are puzzled and not infrequently must operate. In fact it is always safer to do so if in doubt, although hourly observation for three or four successive hours may save surgical interference. The quiet respiration in hypoglycemia and the labored Kussmaul respiration in acidosis are the outstanding physical features. Analyses of blood and urine furnish precise information. With appropriate treatment of hypoglycemia, recovery is swift, but is slow in acidosis. Yet its progress is easily registered. With either condition temporary improvement must be followed by continued obser-

vation, at least for a day, or serious relapses may occur.

Treatment of Coma.—First, the diagnosis. Be sure it is not uremia, opium poisoning, meningitis, apoplexy, hypoglycemia. Second, when satisfied it is coma, give insulin, 20 to 40 units or more, every half hour or hour until improvement is shown by falling sugar in blood or urine, obtained by catheter if need be, or by the state of the patient. Third, wash out the stomach, because one must be sure liquids can be absorbed as consciousness returns. Fourth, give salt solution by enema, subpectorally and, more rarely, intravenously. Fifth, caffeine in $7\frac{1}{2}$ -grain doses has been our best circulatory stimulant. We have not used glucose or sodium bicarbonate. Glucose may put an end to an anuria and possibly might be given for that reason. As a rule, in the second 24 hours, perhaps in the second 12 hours, the patient begins to take carbohydrate by mouth at the rate of 50 grams daily and rapidly returns to his standard diet. Sodium chloride acts as an alkali. As yet no series of cases treated with sodium bicarbonate has shown results comparable with those published by Petren and by myself without sodium bicarbonate.

THE TRANSFUSION OF BLOOD *

By C. L. WOODBRIDGE, M.D.

*From the Montgomery Clinic, Coal Valley Hospital
Coal Valley Hospital
Montgomery, West Virginia*

IT IS a real pleasure and privilege to be here to address the members of the West Virginia State Medical Association. We shall consider, briefly and comprehensively, the subject of blood transfusion, and, in conclusion, present in abbreviated form the seventy-three transfusions done in the Coal Valley Hospital since January 1, 1928.

The successful transfusion of blood from a vigorous donor to an ill recipient is a comparatively recent therapeutic innovation, and in the popular mind is still a deservedly wondrous and startling phenomenon. Today we will not delve into the past, to trace the

evolution of the procedure through the various steps of development, such as the former use of animal blood, the addition of various anticoagulants such as hirudin, oxalate or citrate solutions. We will not enter into any discussion of the relative values of the direct and indirect methods of transfusion, but will dismiss this question by stating that the few advantages of the indirect method are overwhelmingly outweighed by the many advantages of the direct method. Today we wish to dwell on this process, which, when judiciously and scientifically applied, is truly a marvelously efficient "help in time of trouble."

A word of warning is not out of place at the beginning of this paper. The transfusion

* Read before the West Virginia State Medical Association at Fairmont on May 23, 1928.

of blood is a keen, two-edged weapon, and, being of much aid is the defense against disease and death, is also able, if improperly used, to be the divider between body and soul. Blain and Brines, of Detroit, state: "In a personal communication, our attention has been called to a case in which, following the injection of about three cubic centimeters of air into the vein, the patient died immediately. While this case was undoubtedly quite an exception, we feel that it is a warning and would advise against the injection of any appreciable amount of air along with blood." Serious trouble, or even a fatal outcome, may arise if incompatible blood is introduced into the patient. Blood clots must be guarded against in fear of coronary or cerebral embolism. It is imperative that we be meticulous in not conveying some kind of infection from the recipient to the donor. Before doing a transfusion of blood, we must be absolutely certain of several things: First, that transfusion is clearly indicated; second, that the blood is compatible as determined by the examination of a reliable, competent laboratory worker or physician; third, that the technique of the operation is well-nigh faultless. Only after fulfilling these rigid prerequisites are we justified in doing a transfusion of blood. Let us consider a transfusion not a minor, but a major, operation.

It is our belief that the profession as a whole has not yet realized the efficacy of this valuable addition to the armamentarium of the physician and surgeon. When a blood transfusion is infrequently done, it is a very laborious and disagreeable procedure, calling for the ransacking of obscure cupboards and the collection and use of a lot of cumbersome apparatus that is seldom used, and requiring onerous mathematical calculations for the concocting of unfamiliar solutions, and eliciting from the physician raucous imprecations against decayed rubber tubing and rusty needles. It is, therefore, a natural consequence that transfusions are infrequent in most hospitals, and who can blame the busy physician or surgeon?

Blood transfusions *per se* are not often solely responsible for the saving of lives. It must be borne in mind that the procedure is, in most cases, but an adjunct to other meas-

ures. Some of the most important indications for doing transfusions will be mentioned briefly. Primary pernicious anemia has, for years, been one of the chief indications for the performing of transfusions, but it seems that diet is to excel transfusions in efficacy. Hemorrhage of the newborn is one of the conditions in which transfusion is almost specific. Hemophiliacs frequently respond miraculously. Toxic goitres are often helped considerably by transfusions, as are patients following prostatectomy. In severe burns it seems logical to accept the belief that death is due to the absorption of toxic products from the burned area, and therefore it is not hard to agree that it is a salubrious plan to remove some of the toxic-bearing blood and replace it with an equal or greater amount from a vigorous donor. This process has been designated "exsanguination transfusion." In a paper compiled from the notes of the late Bruce Robertson it is stated:

"Up to February, 1922, fourteen cases had been treated by 'exsanguination transfusion.' No selection of cases was observed, as it was felt that the value of the procedure could not be properly assessed if only those were chosen which seemed likely to give successful results. This group of fourteen cases was composed of all the cases of severe burns admitted over a definite period, which exhibited those symptoms of severe toxemia which our clinical experience has taught us to associate with a certain fatal result. In eleven the extent of the burn was more than one-third of the body surface, and, in large areas, the tissues had undergone heat coagulation down to the underlying muscles. Of these fourteen cases, seven recovered. In the opinion of all who saw the patients, the mortality would have been 100 per cent without treatment, so that the results of exsanguination transfusion in this series presents a reduction in mortality from approximately 100 to 50 per cent."

As a preparation before operation, transfusion is of remarkable benefit. Who can believe that the patient with a hemoglobin of 35% stands an operation as well as if he had his hemoglobin built up to 60% or 70% by means of two or three preoperative transfusions, at judicious intervals?

Secondary anemias from almost any cause are probably of paramount importance in discussing indications for blood transfusion. The loss of blood is of grave prognostic importance, whether due to secondary hemorrhage, to trauma, a ruptured ectopic pregnancy or hemorrhage in typhoid; and the replacing of the lost blood by the blood of a hearty donor is quite naturally life-saving in

many respects, in conjunction with the indicated medical and surgical procedures.

In doing a transfusion the point of cardinal importance is the performing of a careful matching of the donor's cells and serum with the recipient's serum and cells, allowing a minimum of one hour to determine the absence of agglutination of the red blood corpuscles microscopically. It is also advisable to do a Wassermann test on the donor, if time permits. In case of emergency the Meinicke test, which is considered by some to be even more reliable than the Wassermann reaction, can be performed, to give a reliable result within two hours. It is further advisable, in view of the fact that after inoculation by the spirochete some weeks must elapse to give a positive Wassermann, to question the prospective donor regarding recent exposure to infection. We feel confident that the careful and painstaking work done by the laboratory workers at this hospital is the greatest and most important reason why post-transfusion chills and hyperpyrexia have not played a prominent role in our cases.

A monumental paper by Dr. Brines, of Detroit, reporting nearly 2,500 transfusions, appeared in this month's issue of the *Archives of Surgery*. We have given his paper much thought, and believe he has added valuable data to this field that is so rich in possibilities.

In this series we have had one reaction that was of some temporary disadvantage to the patient and another reaction that was truly deleterious to the wellbeing of the patient. The second patient, who was most critically ill, had received one transfusion and was cross-matched with a second donor, whose cells and serum were compatible. The second transfusion was not done until twenty-two hours after the successful matching, and the patient had a severe reaction. While we have seen nothing in the literature to confirm this point, we believe that although the donor's blood was compatible the day before the second transfusion, there must have been an unexplained change in the interim, with the result that at time of transfusion the donor's blood was really incompatible. To meet this contingency we are now doing the matching immediately before transfusion.

In this hospital blood transfusions are no longer the bugbear of the operating-room staff, and are now brief, neat, and practically painless procedures, calling for the minimum of preparation by those in charge of the operating room. We usually give the patient an ounce or two of saline solution previous to, and sometimes during, the transfusion. We find that the procedure can be done in the ward or private room. It is seldom necessary to cut down on a vein. In the usual case about twenty-five minutes is consumed in doing the transfusion. The team consists of the physician and two nurses, one of whom does not scrub up. The blood is in the apparatus from five to fifteen seconds, does not come in contact with air, can be accurately measured, and is not modified by the addition of saline or citrate.

A word regarding donors is not out of order. It is our policy to use relatives or friends when circumstances permit. In about a third of the transfusions we have used as donors students in the New River State College, with the hearty approval and warm cooperation of the college authorities. We appreciate highly the fact that these students are willing to undergo a certain amount of discomfort, not only to secure the donor's fee but to aid as far as they are able in the saving of life. We have a list of donors representing each of the four blood groups, and in case of emergency it is a great comfort to have available, at almost a moment's notice, donors willing and eager to act.

We recently had a patient with a streptococcus infection complicated by a most severe epistaxis of about a liter of blood. He received two transfusions of 630 cubic centimeters each. The patient's blood was in Group III. Only three to five out of a hundred donors are in this group, but we were fortunate enough to have on our list two college students in Group III. If time permitted, which it does not, it would be most gratifying to tell in detail of some of these cases. One who has seen the marvelous effects of transfusion can with difficulty refrain from orating at great length upon its wondrous benefits.

It is interesting to note some of the indications for which transfusion was done in this series: Streptococcal infection of arm,

with hemorrhage, then amputation; mastoiditis, with profound shock and grave secondary anemia; partial intestinal obstruction with cachexia; puerperal anemia; traumatic amputation of one leg and one foot; as prophylaxis against shock during severe operation; sarcoma of intestine with grave secondary anemia; two cases of severe burns; to build up hemoglobin and red blood corpuscles before hysterectomy; after operation for ectopic pregnancy (two cases); ruptured appendix with diffuse peritonitis (three cases); incomplete miscarriage; for shock

following operation for osteomyelitis; following operation for ruptured duodenal ulcer; gunshot wounds; placenta prævia; following prostatectomy; four cases following operation for calculi in the common duct; puerperal sepsis; perforation in typhoid fever; after partial gastrectomy; following removal of renal retention cyst; partial resection of colon for malignancy.

REFERENCES

1. Blain and Brines: The Transfusing of Unmodified Blood; Archives of Surgery, January, 1926.
2. Robertson, L. Bruce: Exsanguination Transfusion; Archives of Surgery, July, 1924.
3. Brines, O. A.: The Transfusing of Unmodified Blood; Archives of Surgery, May, 1928.

A DISCUSSION AND DEMONSTRATION OF THE KAHN TEST FOR SYPHILIS *

By ROBB SPALDING SPRAY, PH.D.

*Professor of Bacteriology and Hygiene, West Virginia University Medical School
Morgantown, West Virginia*

PRACTICALLY all alcoholic extracts of animal tissues, when mixed with syphilitic serums in proper concentration, give precipitates. The factors governing the occurrence of this reaction seem to be two: First, a high concentration of lipoids in the antigen, so mixed with salt solution as to give a highly unstable colloidal suspension; second, the presence, and amount, of a property, probably also lipoidal in nature, in the patient's serum (Reagin).

When a serum containing the specific property (Reagin) is shaken together with a properly prepared antigen-salt mixture, a stable precipitate forms which is insoluble in salt solution. The delicacy of the test, and the time interval, can be adjusted so that the precipitate appears immediately or after some hours after mixing.

Based on these observations, numerous tests have been evolved—the Porges-Meier, Bruck, Hecht, Meinicke, Sachs-Georgi, and the Sigma Reaction of Dreyer and Ward are examples. Each author has claimed advantages for his particular method, but all have their defects, chiefly in the length of time required for the precipitation.

In 1921 Reuben L. Kahn, of the Michigan State Laboratories, undertook a comparative

study in the attempt to simplify, reduce the incubation period, and increase the accuracy of the test. How well he has succeeded is evidenced by the fact that the state laboratories of Michigan, West Virginia, and Missouri, the U. S. Naval Hospital, and numerous other public and private laboratories have discontinued the Wassermann test in favor of the Kahn, while many others now run comparative tests with both systems, in view of similar action. Weekly and monthly the current medical literature reports thousands of comparative tests in which the average results check with 98-99% on the 2-3-4 plus and negative reactions. The 1 plus and plus-minus reactions show a check of 75-85%, depending on the type of antigen used in the Wassermann. The general consensus of opinion of those who are not strongly prejudiced in favor of the Wassermann is that the Kahn is more delicate, may appear earlier, and generally remains positive after becoming Wassermann negative. 35-40% in one week after chancre appears; 60% second week after chancre appears; 70% third week after chancre appears; 80% fourth week after chancre appears; 85% fifth week after chancre appears.

What significance is to be attached to this latter fact remains for the clinician to decide;

* Original paper.

that is, whether the patient is to be regarded as "cured" when the Wassermann 4 plus is brought to negative while still Kahn plus. However, I believe that the modern attitude is that syphilis is to be regarded as "arrested" and not "cured," so that this point is of only secondary importance at most.

The simplicity of the test; the brief incubation period; the fact that the test can be applied to old, contaminated and hemolyzed serums with the same accuracy as fresh sera; that the test can be run at any time within one hour; that the antigen is perfectly stable and requires only a single titration; that there is but one variable—the patient's serum—which is the variable tested for; that the 2 + 3 + 4+ and negative test is at least 97% accurate when checked by the Wassermann; that it usually becomes positive earlier and remains positive longer than by the Wassermann—all of these observations render the Kahn test an important adjunct to our laboratory procedures.

The Test.—The antigen is prepared from powdered beef-heart muscle, dehydrated and extracted four times with anesthesia ether to remove the ether soluble fats and lipoids. The ether-extracted powder is then extracted three days at room temperature with a measured volume of ethyl alcohol (96%), the alcoholic extract filtered off and 6 mg. of C. P. cholesterol per c.c. of extract added and dissolved. On the following day the cholesterinized antigen is titrated, and is then suitable for use for several months, although it is preferable to cholesterinize only about a two months' supply. The original alcoholic extract keeps indefinitely. Both stocks are kept in brown bottles, of neutral reaction, with tinfoil-covered stoppers, at room temperature and in the dark.

Salt solution, 0.85% C. P. NaCl dissolved in distilled water, and filtered each time just before use, to remove any possibly confusing precipitates or foreign matter.

Patient's serum is taken as for the Wassermann. Only 0.45 c.c. is required for the single test, but 5-6 c.c. of blood allows for repetition of test if desirable.

Blood clotted, centrifuged at high speed to clear completely of corpuscles and any precipitates.

Chyle, fats or fatty acids, which appear in the blood shortly after a heavy meal, or contamination, age and hemolysis which render serums anticomplementary and useless for a Wassermann, apparently have little or no effect on the Kahn test.

Each serum is inactivated for 30 minutes at 56° C.

A known positive and a known negative serum are inactivated for 15 minutes at 56° C. each time before using as controls.

Mix Antigen.—In the meantime the antigen-salt solution mixture is prepared in sufficient volume for the test.

According to previous titration, from 1.1 to 1.2 c.c. of salt solution is mixed quickly with the antigen to give a very turbid emulsion. This mixture stands for the last 10 minutes of the inactivation period, and must be used within 30 minutes from its preparation to avoid crystallization of the cholesterol.

Three tubes are used for each serum tested. These must be chemically and optically clean, and neutral in reaction, but not sterile.

The antigen-salt mixture is measured into the three tubes—.05, 0.25, and .0125 c.c. in order from front to back.

The sera are then added in .15 c.c. volume to each of the three tubes, including first the positive and negative controls.

The rack is then shaken vigorously for three minutes.

Salt solution is then added to each tube, 1.0 c.c. to each tube of the front row, and 0.5 c.c. to other tubes, then shaken briefly to mix.

All tubes are then examined carefully for presence of precipitates, using an overhead light and looking against a dark background.

The only personal element entering into the test is the ability to recognize the presence and degree of precipitation.

Complete precipitation with a clear menstrem is read 4-plus. Strong, but less than complete, with a slight opalescence, as 3-plus; and the weaker as 2- or 1-plus. The negatives show an opalescence perfectly free from precipitate.

The three tubes of each of the controls are first examined and recorded—then each test serum in order. The degree of precipitation in each tube is recorded, and the sum of the

plus signs of the three tubes is then averaged for the final report.

The readings will commonly run :

			Average
—	—	—	—
++	++	++++	++
+++	+++	++++	+++
++++	++++	++++	++++
++++	++++	++++	++++

That is, the strongest reaction appears in the back tube with the smallest amount of antigen.

In treated cases the reaction disappears, on consecutive tests, first from the front tube, then the middle, and last from the rear tube. (Kahn records only two cases in some 50,000 tests where the front tube was positive and the back tube negative. These cases were Wassermann 1- and 2-plus.

Quantitative Procedure.—The number of variables in the Wassermann test precludes the possibility of measuring the amount of the reacting substance in the patient's serum. However, in the Kahn test the only variable is the amount of this reacting substance, and by definite dilution of the serum the highest dilution giving a definite precipitate can be said to contain 4 Kahn units of reagin. The dilution figure is then multiplied by 4, and the result expressed as so many Kahn units.

It has been observed that in early secondary syphilis a serum dilution of 1 to 40, 50, 100 may give a definite reaction, indicating 160, 200, 400 Kahn units. Furthermore, in such a case, with continuous and intensive treatment, repeated quantitative tests show a gradual decline of Kahn units, in general following the intensity of treatment, and to a considerable extent also the amelioration of symptoms and manifestations.

The question whether the disappearance of the reacting substance from the blood indicates recovery from infection or a secondary change in the blood chemistry associated with development of immunity against existent, refractory and latent foci in the body, is a problem for the clinician and the research student. Kahn believes in the first interpretation. The fact remains, however, that the laboratory offers a method by which the specific syphilitic reacting substance can be measured with a high degree of accuracy.

Spinal Fluid Test.—Approximately the same methods are applied to spinal fluids from suspected cases of neuro-syphilis. The globulins of the fluid are precipitated with saturated ammonium sulphate, and are then dissolved in a small amount of salt solution, which solution is then used for the test.

To 3 c.c. of spinal fluid are added 2 c.c. of saturated ammonium sulphate and mixed. This mixture is then incubated for 15 minutes at 56° C., during which time the positive fluids will show a heavy flocculence of globulins. The tube is then centrifuged 15 minutes at high speed. The supernatant fluid is then completely removed and the precipitated globulins dissolved in 0.3 c.c. of salt solution.

The test is then performed with this solution similarly to the test of serum, differing only in slight detail in the amount of antigen used.

While the number of comparative tests reported is small as compared with those of serum, the reliability of the Kahn, in terms of Wassermann, appears to be the same as for serum. In treated cases the Wassermann may be slightly more sensitive. However, in the diagnosis of untreated cases the positive Kahn may be regarded as having the same significance as the positive Wassermann.

CONCLUSIONS

The studies of Hull, Walker, Hopkins and Brunet, Houghton, Hunter and Cajigas, as well as those of Kahn himself, justify the following conclusions:

1. The Kahn test is based on a scientific procedure free from the empiric procedure of the Wassermann.
2. It is simple, direct and rapid, allowing report within an hour.
3. It may be conducted at any place, and requires the use of only ordinary laboratory reagents and apparatus—no animal serum or sheep-blood corpuscles.
4. It consists of three procedures for serum and two for spinal fluids, and gives the clinician far more information than the Wassermann.
5. It is more sensitive in treated cases and becomes positive earlier in the primary stage.
6. The stronger the Kahn test, the greater the probability of syphilis.

7. This *probability* never becomes *absolute certainty* with any test.

8. It is specific for syphilis, no other known condition giving the positive reaction, with the possible exception of yaws.

9. The functions of the Kahn test are two:
(a) To suggest the possibility of syphilis in

patients not previously suspected, thus leading to more thorough investigation; (b) to add an indefinite amount of confirmatory evidence to previous diagnosis or suspicion of syphilis.

10. The Kahn test removes serum diagnosis from *empiricism* and places it in the realm of *quantitative science*.

THE SURGICAL TREATMENT OF CERTAIN INFECTIONS *

By JAMES C. MITCHELL, M.D.
Washington, D. C.

IN A RATHER active hospital and emergency service during the past several years I have watched with much interest the work of internes and young surgeons, and have been impressed with the fact that there seems to be an almost universal tendency to operate upon every infection as soon as it comes under observation. While not wishing to be understood as advocating hesitation, delay, or "pottering" with such cases, I do feel that a word of warning may be in order against the immediate opening of every infection without due consideration to such factors as nature's protective reaction, the patient's power of resistance, the proper time for operation, and, finally, the proper incision and after-treatment. Such considerations may quite properly be styled "Conservatism in the surgical treatment of infection."

In an interesting paper in 1913 Whiting states: "The great underlying factor in all of the many advances in medicine and surgery that the world has witnessed is the healing power of nature. Without this wonderful power many of the results of our attempts to relieve humanity of the numerous lesions to which the flesh is heir would be appalling. If we could fathom the wonders of nature as exemplified in her power to construct, maintain and reconstruct, to eliminate harmful products, to cure disease, our task of aiding the sick and afflicted would be greatly simplified. Nature alone, until the most recent times, has effected a cure in most

diseases; the physician and surgeon have but aided in conserving the strength of the individual until nature's work has been accomplished. Today, by taking advantage of the slight knowledge he has of the methods employed by nature in effecting cures, the doctor is able to master certain diseases. This miraculous curative power of nature is coming more and more within the knowledge and control of man through the studies and investigations of painstaking and never-ending experiments of scientific medical seekers of truth. The work of the operator, however brilliant the operation, has been to aid nature."

While this expression is a little flowery and probably too strong, it, nevertheless, contains a great deal of truth.

Maurice Richardson has expressed a somewhat similar warning in the following: "Through the enthusiasm of a long series of successes we are whirled from a sound foothold and carried beyond the limits of safety and conservatism. Do we not place too great reliance on surgical methods where other and less dangerous methods are practicable?" It will be our effort to point out that in many instances conservatism may lead to better results, and to support by the recital of cases our contention in this matter. In these days, when major surgical operations are common, it is not an unusual thing to see the small affairs ignored or badly treated. In our ordinary medical-school training great emphasis is laid on the proper way to remove an ap-

* Read before the West Virginia State Medical Association at Fairmont on May 24, 1928.

pendix, to resect a stomach, to anastomose intestines; but how many of our graduating students can properly treat an infected finger? Tremendous good has been done by Kanavel's wonderful work on infections of the hand, and yet in dispensary service daily we see the cardinal principles which he has laid down violated and tendon sheaths opened or unnecessary incisions made. Let us consider the simplest type of infection of the finger and the one which comes most often for relief: a simple paronychia. The invariable procedure is to make an incision into the side of the finger, pack in a little gauze and put on a dry dressing. The result in many instances is that eventually the nail is lost and at best the infection lasts through a painful period of weeks before it is entirely healed. There is a very simple, conservative method of treating these little infections which I have never seen fail. By separating the cuticle from the nail with the blunt edge of a narrow knife, pus can always be reached by the side of the nail and recovery is complete in three or four days, the skin never having been cut. The application of a wet dressing in such cases relieves the pain and leads to rapid recovery. No new avenues of infection have been opened. Nature is simply being aided without placing any greater burden upon the already disabled finger. This may be taken as the simplest type of conservatism.

Kanavel has pointed out the tremendous advantage of not opening tendon sheaths by making incisions into the sides of fingers, and yet how often do we see stab wounds made to relieve infection which have served only to carry the infection to the poorly resisting tendons.

The treatment of infected joints, especially the knee, has undergone, especially since the World War, a marvelous transformation. During the empyema epidemic in the early part of 1918, when the hemolytic streptococcus was responsible for so many terrible infections, purulent arthritis was a very common event. It was the custom to open a knee joint and drain with tubes. Such treatment invariably resulted in a stiff joint. I can recall several cases where the patellar tendon had been divided and the whole joint

thrown wide open in order to apply Dakin's solution. The results were always bad. It has been established by Willems that drainage should never be instituted in any knee joint through the insertion of a tube or drain. The Willems treatment consists of lateral incisions with abundant gauze dressings and maintenance of motion resulting in cure of the infection with a movable joint. During the last two years I have had occasion to treat two knee joints infected with hemolytic streptococcus. One occurred as a sequel to scarlet fever and mastoid disease, the other as the result of an automobile accident in which the joint was torn open. In both of these the conservative Willems treatment was used and both resulted in recovery with perfectly normal function. And yet I have seen in the same time three cases in which knees were drained with tubes. In one of these death resulted; in the second, amputation, and in the third a stiff joint was the best that could be obtained. In the treatment of carbuncles and boils there is even now a wide diversity of opinion in regard to the proper method. The general idea prevails that as soon as a boil or a carbuncle appears it should be lanced, or a crucial incision made. Nothing can be worse and nothing more unnecessary. In our own work for many years we have never touched a boil or carbuncle with a knife. Nor have we ever regretted our decision. These infections are practically always due to a staphylococcus and much of the swelling and edema about them is nature's defense in establishing a leucocytic wall about the point of infection. Personally, I have great faith in the use of stock vaccines, and these we begin as soon as the patient is seen, always with a minute dose and increasing very slowly. When an incision, especially the crucial incision, is made in a boil or carbuncle, uninfected tissues are injured, nature's defensive wall is broken down and lymphatic channels are opened for the spread of infection. We believe that the best treatment is the constant application of a hot, wet dressing. The character of the solution does not matter. We have faith in a weak solution of bichloride of mercury. Gauze, saturated with this solution as hot as can be borne, is covered by a piece of rubber tissue and held in place by

an abundant gauze dressing. This can be changed once or twice a day. When a pustule appears its top is lifted off, and except for this no opening is made. In a few days the slough begins to come away and there is no tendency to a spread of the infection. If a carbuncle or a boil is cut at all, it should be done only with the actual cautery which closes lymphatic channels as the incision is made. While the above statements hold true for boils and carbuncles in any location, it is especially important for those involving the nose, upper lip, and face.

At the meeting of the Southern Surgical Association in 1926, attention was called to this by Dr. John W. Price, of Louisville, and his paper was broadly discussed. The danger of these infections is well known, and innumerable deaths have been reported, but always following early incision. Price quotes Sir Frederick Treves as saying that "infections of the lips should not be cut in the early stages on account of the danger of vein infection and thrombosis." Yet this advice is violated every day. No where is conservatism more strongly indicated than in the treatment of such infections. Every effort should be made to build up the patient's resistance; fluids should be forced, and rest and plenty of sleep insisted upon. The local treatment consists of hot, wet applications, reinforced often enough to keep them hot and wet. Under this treatment the process becomes localized and goes on to liquefaction. Drainage is maintained by keeping patent through moisture and possibly small pledgets of gauze the spontaneous openings.

As far as cosmetic results go, there is no question as to the size and appearance of the scar from a conservatively treated carbuncle as compared with that from one which has been incised. One of my confreres has under his care at the present time a boy whose trouble started with a small pimple in his nose. This was lanced and the boy came into the hospital with an extensive infection. He is now hopelessly ill with a general staphylococcus septicemia and multiple lung abscesses.

In infection of the neck, Ludwig's angina, the use of hot applications with efforts to build up the patient's resistance before making an incision will be found to be better

than an early incision and a hunt for pus. The following case will illustrate this: On the fourth of March, 1927, there was admitted to the hospital Mrs. A. E. L., the wife of one of my colleagues. She had been ill with a sore throat for ten days and had developed a swelling below the left ear. She was extremely ill, temperature 103° , pulse rapid and weak. There was a painful, tender, brawny swelling bulging out the upper half of the left sterno mastoid muscle with no fluctuation. Her urine contained albumen and casts. Her leukocytes were 1,400, with a polynuclear count of 20%. It was evident that her resistance was at a low ebb. Hot, wet fomentations were applied to the neck and fluids were forced. The leukocytes gradually but steadily increased. On March 7th the count was 1,600 with polynuclears 36%. On March 8th the leukocytes were 2,050 with polynuclears 40%; on March 11th 4,300 with polynuclears 46%. Blood culture was negative. Cultures from the throat showed hemolytic streptococcus. By this time fluctuation could be felt and the patient's general condition was greatly improved. There was never any spread of the swelling in the neck. Under ethylene anesthesia on the 12th of March, eight days after admission, an incision was made posterior to the sterno-mastoid muscle and pus evacuated. Gauze and protective wicks were inserted and a wet bichloride dressing applied. The temperature fell to normal immediately after the operation, and did not again rise. On the 15th the wound was dressed for the first time and the drains removed, and she was up in a chair. A note on the first of April states that she was seen in the office, the picture of health, the wound entirely healed.

This case had such an excellent result and speedy convalescence due to the fact that she was operated upon after she had begun to establish resistance to the infection. The following is a very common story:

On February 12, 1927, a college boy, W. R. C., was seen in consultation with an excellent throat specialist. Several days before he had consulted the specialist because of a boil in the left external auditory canal. This was incised and two days later he developed a high temperature, 103° , and an exten-

sive swelling behind and below the left ear. Examination showed a tense and brawny cellulitis extending down the sterno mastoid muscle with no fluctuation. Hot, wet compresses were applied, the boy kept at rest and fluids forced. On February 18th fluctuation appeared without any further extension of the swelling, and under ethylene anesthesia an incision was made back of the sterno-mastoid muscle and pus evacuated. His temperature immediately subsided and he left the hospital in eight days with a small granulating wound. The outcome here was in large part due to the selection of the proper time for operation after resistance had been established.

Carrying our observations to a different field, the abdomen, I believe the warning is just as necessary. In 1926, at the American Surgical Association, Dr. LeGrand Guerry, of Columbia, S. C., read a most impressive paper. He reported practically 3,000 cases of appendicitis operated upon by him with 16 deaths, a mortality of 0.54%. He stated that, according to census reports, there were five hundred thousand cases of appendicitis in the United States in 1925 with 25,000 deaths, a mortality of 5%, and his statistics show that the death rate in appendicitis is gradually increasing throughout the United States. This increase can, among other reasons, be attributed to indiscriminate operating and the failure to select the proper time for operation. In support of this, Guerry reported an early series of 85 cases of appendicitis with diffuse peritonitis operated upon as soon as the diagnosis was made, with seven deaths, 8.2%. In a second later series of 123 exactly similar cases in which operation was deferred and the most advantageous time for operation selected, there were two deaths—1.6%. The lesson which this paper teaches is not to rush in, as was once advised, the minute the diagnosis is made, but to follow the valuable teaching of Ochsner and give nature a chance to wall off the infection, establish resistance, and then operate under favorable conditions. The following case will illustrate this point:

On April 13, 1927, Mr. J. H. A. was admitted to the hospital with a history of an abdominal attack beginning several days

before, administration of a purgative with several bowel movements, and after this a rapidly fulminating abdominal condition. Examination showed him extremely ill, the abdomen rigid and boardlike throughout; temperature 102°, pulse rapid and weak. Diagnosis of perforated appendix with extensive peritonitis was made. He was kept in bed, hot stupes applied to the abdomen, and fluids forced subcutaneously and by rectum; nothing by mouth. His condition gradually improved and on April 18th, five days after admission, the abdomen had become soft with the exception of an area close to the iliac spine—a definite localized abscess. On April 21st, eight days after admission, a McBurney incision was made, a sloughing appendix removed and the abscess evacuated and drained with a couple of gauze and protective wicks. He made an uneventful recovery, and on May 3d the drainage had been removed, he had a small, clean, granulating wound, and was up in a chair. I believe that operation upon this individual at the time of admission would have carried a strong probability of a fatal outcome.

The desirability of delay in acute tubal infection is so universally accepted that it does not warrant discussion.

It is not the purpose of this paper to enter into the discussion of the two-stage operation as a conservative method; but I can not resist citing the following case as an instance of conservatism in the treatment of gallbladder infections:

January 13, 1925, Miss H., aged 65, was admitted to the hospital with a history of past gallbladder attacks and a recent acute attack of several days' duration. Examination showed her definitely jaundiced with a rigid, boardlike abdomen and an evident, extensive peritonitis. The abdomen was distended, the skin cyanosed as well as jaundiced, the pulse rapid and weak; the patient extremely ill. Hot applications were kept upon the abdomen and fluids forced subcutaneously and by rectum. Her condition gradually improved; the jaundice disappeared and her temperature became normal. On February 14th, one month later, the abdomen was opened and there was found an infected gallbladder with an abscess about it

walled off between omentum and liver. It was not thought wise to explore the ducts, and the gallbladder and abscess cavity were simply drained. She made an excellent recovery, and in May, 1926, a year later, she was seen again in a typical common duct attack. She was in excellent condition by this time. The gallbladder was excised, the stone removed from the common duct, and she is now, three years later, in excellent health. Any radical operation when this patient was first seen could have had only a fatal outcome.

Our plea from this experience is that there are many aids to surgery, and the surgeon,

as Maurice Richardson has stated, should not be too hasty or place too great reliance on surgical methods alone when other and less dangerous methods are possible. In other words, in the treatment of infections we do not wish to discredit surgery, but we feel that the surgeon should consider nature's defense and nature's aid in combating infection, and bend his efforts to building up rather than interfering with nature's resistance, and thus select the proper time for operation and the proper incision where it will do the least harm when operation is deemed necessary.

ACUTE SURGICAL MASTOIDITIS *

By SOBISCA S. HALL, B.S., M.D.
Buckhannon, West Virginia

IT IS NOT an uncommon occurrence to find a child who has had a suppurative otitis media for six months to three or four years, who gives a definite history of mastoid symptoms early in the onset of the disease; in adults some of these cases give a history of similar onset with almost continuous supuration for twenty years. It is because of these findings that this paper was prepared.

It is true that in a small isolated area, such as the author is in, there are but few mastoidectomies performed each year, and that a clinical report of these few cases, although interesting, would not be convincing. However, it is imperative that mastoiditis be appreciated even though one were to see only a half-dozen cases each year. Because of the excellent available literature on the subject, a resume has been made, and that source is used largely in this article.

This paper is probably more appropriate for reading before a group of general practitioners, but the author has been guilty of ultra-conservatism and probably some of you have, too. It is true that many cases of acute suppurative otitis media heal (and that term *heal* is only a relative one) with conservative treatment; some do not heal without surgical intervention, and some do not heal by either

or both. We can not say that a given case would have healed by the institution of treatment different from that followed; but we can compare a large series of similar cases treated by the various methods and get a fairly accurate cross section of expectancy in a given case.

It is appalling to review the high percentage of chronic suppurative otitis media cases and some of the so-called catarrhal ones, too, which give a definite history of acute suppurative otitis media with mastoid complex at onset and handled without operation. Dench¹ feels that "A middle ear that does not clear up after an acute otitis media is a focus of infection, no matter if the drum is healed." He does not state what is meant by "clearing up," but the author is inclined to consider "clearing up" to mean the return to normal function of the diseased member; this would imply cessation of pain, tinnitus, and the return of normal hearing. The author in two years has his first case of chronic suppurative otitis media to examine whose hearing was normal. Defects ranged from ten per cent to eighty per cent loss of function.

What is an acute surgical mastoid? There is no single criterion nor set of criteria that will determine this. Dench¹ considers ten days to two or three weeks as the maximum. Coates² states: "After all, in cases of con-

* Read before the West Virginia State Medical Association, Section E. E. N. & T., May 23, 1928.

tinued doubt operation is the safest procedure and as such is fully justified; since the operation itself is not dangerous to life, preserves and conserves hearing and usually speedily terminates the aural discharge." Pyle³ states: "The greater number of mastoid inflammations sooner or later demand surgical interference." In view of the oftentimes attending post-auricular edema, hyperemia, and tenderness with the acute suppurative otitis media, the disappearance of which is usual within thirty-six to forty-eight hours, the recurrence of the mastoid complex any time after its initial disappearance must strongly suggest operative relief. It is an accepted belief that "(1) Probably every case of acute suppurative otitis media is really a mastoiditis." Politzer⁴ has proved by numerous post-mortem examinations: "In every acute middle ear suppuration, pus is found in the pneumatic cells of the mastoid process. The presence of pus in the mastoid antrum and cells does not in any way imply that an abscess has formed in the mastoid process." Ballenger⁵ states: "As a matter of fact, all or nearly all suppurative middle ear inflammations probably also involve the mastoid cells." It is not possible to set a specific time limit just when to consider an acute suppurative ear as a surgical problem. The author feels that the maximum time limit is when the diagnosis of mastoid complex is made. It is intended that this point-failure of the mastoid complex to disappear within thirty-six to forty-eight hours after the establishment of free drainage, or the return of the mastoid complex after its initial disappearance, is definite indication for surgical intervention. Coates² states: "Mastoid pain, earache or headache, must be considered as a serious indication for operation when they persist more than forty-eight hours after opening the middle ear, either spontaneous or by surgery."

Symptoms of Acute Surgical Mastoiditis.—These are quite varied, but the picture of an acute mastoid is fairly typical. There are a few pathognomonic signs, but it is rather preferred to consider the mastoid disease as a composite complex and to establish the diagnosis on the entire clinical picture presented, and not wait for a so-called pathogno-

monic sign: to wait for a Bezold's abscess before establishing the diagnosis is stupid, yet it is an absolute pathognomonic sign. It is not even necessary to have a suppurative otitis media, nor a history of such, to have mastoid disease. Dabney⁶ reports: "An abscess in the mastoid process of the temporal bone without any immediately preceding or accompanying involvement of the tympanum." He also cites twenty-four other cases reported up to this time in the available literature. The late Dr. L. H. Forman, F.A.C.S., of Buckhannon, found such a case in his varied surgical practice. The author has seen one case—with a definite mastoid complex—which had a history of seven days' duration but no discharge through the tympanum. The tympanum was intact but acutely inflamed. Examination of the pharynx revealed a large amount of pus escaping from the eustachian tube, which accounted for the non-rupture of the drum over the period of the disease.

The following symptoms, however, make up the usual composite of acute surgical mastoiditis:

(a) History pain, earache, aural discharge of greater or less duration.

(b) Redness, edema or fluctuation over the mastoid process, obliterating the post-auricular sulci. This must be considered also in furunculosis. The author has seen one such case in a young woman that suggested a Bezold's abscess.

(c) Tenderness over the entire mastoid process or over certain points—antrum, tip, or emissary vein. However, it must be remembered that some patients have normally tender mastoids. Where there is unilateral disease, this is quite diagnostic, but in bilateral disease it is simply suggestive.

(d) Sagging of the posterior superior canal wall. Here again we must consider the differential diagnosis of furunculosis. In addition, the possibility of an osteoma or chondroma in this position is not rare. The author has seen one case; that of a young man who gave no history of pain. However, he complained of a foreign body in his ear, with foul discharge. Examination revealed an occluded canal except at the extreme anterior half of the circumference of the

canal, from which could be secured a foul-smelling, purulent exudate. The mass was quite firm and it was felt that the growth was probably an osteoma or chondroma. It enucleated quite easily and on section proved to be an osteo-chondroma. The discharge was from the necrotic base from pressure.

(e) Membrane red, bulging, or perforated. It must be remembered, however, that the drum may be entirely normal to examination. (Dabney.⁶)

(f) Pus from the middle ear—if drum is ruptured through the canal, while if drum is intact the discharge will be found from the eustachian tube.

(g) Impaired hearing with conductive interference. However, the possibility of previous hearing defects must be remembered.

(h) Temperature, 99 to 102 degrees without marked fluctuation. The pulse is commensurate with the temperature. It is surprising, though, the temperature that may be present with the acute otitis media and gradually subside, and yet there be a persistent severe mastoid involvement.

(i) X-ray. This is not pathognomonic, however, but is a very valuable adjunct. Dr. Coats² states: "Great dependence can not be placed upon this method of examination. Generally speaking, the X-ray pictures taken by a competent man and read by intelligent cooperation is a great help, but operation must not depend upon this alone, either for or against."

There is no single point that is a positive indication for operation. Any one of them can be attributed to another cause; it takes a combination of points to establish the diagnosis.

Indications for Mastoidectomy in the Acute Cases.—(a) Relative: Here we must remember that it is purely a matter of judgment and the operator's conservatism or radicalism that may oftentimes be the determining factor. In this group would be classed those that present the suggestive signs of mastoiditis:

1. Middle ear suppuration.
2. Mild mastoid pain and tenderness.
3. Normal or nearly normal temperature.
4. Questionable sagging of the canal wall.
5. Questionable post-auricular edema.
6. Slight conductive deafness whose onset was concomitant with the present difficulty.
7. Questionable X-ray diagnosis.

The relative indications may become absolute at any time, the absolute being an exaggeration of the relative. However, the absolute are those that present a definite, positive mastoid complex that, when considered together as a clinical picture, can rarely be attributed to any other cause.

(b) Absolute:

1. Continued auricular discharge.
2. Persistent pyrexia, 99° to 102°.
3. Boring pain in the mastoid with exquisite tenderness.
4. Mastoid swelling with obliteration of posterior auricular sulci.
5. Positive sagging of the posterior canal wall.
6. Rather high leukocytosis with a polymorphonuclear leukocytosis.
7. Positive X-ray diagnosis.

The clinical picture that this presents can not be mistaken, and one can certainly justify surgical intervention, to any one's satisfaction, with the above signs present.

---Contraindications.—In this day and age there is no such an entity as a contraindication to a mastoidectomy except death prior to operation. True, we may be forced to modify our intention of thorough exenteration of the mastoid cells in the very aged and debilitated patients. Since we are able to perform the operation under local anesthetic, even this type of patient becomes a fair surgical risk. It is believed that there is no more contraindication to the opening of a definite acute mastoid than there would be to opening an acute surgical abdomen.

Statistics of Operated Cases.—In collecting these it has been considered best to divide them into ten-year intervals in order to determine progress or failure of progress relative to the procurement of the results for which operative work was instituted. The groups are given of total mortality for the simple and radical combined. The simple acute mastoidectomy would doubtless give a much better percentage if considered alone. However, as we are quite aware, one never opens the mastoid but he must reckon with the possibility of later on having to do the radical as a secondary measure.

(a) Before 1910:

1. Hastings⁷ reports 281 mastoidectomies with subsequent results:
Acute mastoids, 164; children, 20%,

adults, 80%. Cases observed personally, 90. Complete recovery, 62; death, 9; healed, but canal moist, 7; secondary operation required, 14. Of the 63 healed: Normal hearing in 54; hearing not completely restored, 8. Total mortality, 6.5% in 281 cases.

2. Pyle³ reports 100 consecutive mastoids. Children, 48; adults, 52. Forty-eight children gave three times as many acute cases as adults. Fifty-two adults gave three times as many chronic cases as children. Forty-five acute cases gave 33% of intracranial complications, mostly in children, and all lived. Fifty-two chronic cases gave 36% of intracranial complications, of which four died. Mortality, 4%.

3. Calhoun⁸ gives his results in 186 known cases. He uses the term "cured" to mean "mastoid wound healed entirely, aural discharge ceased, and middle ear returned to normal."

Cured, 126; healing satisfactorily, 17; wound healed but canal moist, 14; did not heal, 14; required radicals, 5; post-operative tinnitus, 10; impaired hearing, 12; facial paralysis, 9—five as symptom before operation and four by operation. Three cleared up in six months and one was permanent.

Mortality not given.

(b) Before 1920:

1. Lillie and Barlow⁹: Cases, 64; youngest, three years; oldest, 72 years. Died, 4. Meningitis, 2; erysipelas, 2; otorrhea persisted, 3; hearing improved or remained stationary, 59.

They also cite Welty and Barries of Copenhagen: Cases, 1,108; operative mortality, 1.4%. Welty, 106 with no mortality.

(c) After 1920:

1. Freidman and Greenfield¹⁰: 100 cases, not selected; 83 children, 17 adults; 1 death from shock or embolism.

2. Lempert¹¹: 165 cases by a new, unique method, "subcortical mastoidectomy." Two deaths from meningitis; 163 dry ears in 21 days; 162 cases normal hearing; 1 case totally deaf in involved ear. No recurrences after one year.

He also cites 165 cases operated upon by himself by the Schwartze method: 7 deaths; 3 complications, sinus thrombosis; 5 meningitis; 158 recovered; 158 middle ear dry in four weeks; 158 good results with hearing; 6 had recurrences.

By comparing the above series we find: Before 1910, 6.3 per cent mortality in 164 cases. Before 1920, 4 per cent in 100; 1.08 per cent in 1,108; no mortality in 106; 6.25 per cent in 64. After 1920, 1 per cent in 100; 1.28 per cent in 165; 4.22 per cent in 165. By accepting a mean percentage average of the last 37 years, we have 2,089 cases that

give a total combined mortality of 1.9 per cent.

Why Operate Early?—By early is not meant the initial period of mastoid complex early in the disease unless it is under the qualifications as named previously. It is intended to refer to those cases with recurrence of the mastoid complex or persistence of such longer than thirty-six to forty-eight hours after the establishment of ample drainage through the tympanum. It is believed by the author that the following reasons justify early operative interference:

- (a) To prevent intracranial complications.
- (b) To preserve and conserve hearing.
- (c) To lessen chances of recurrence.
- (d) To prevent establishment of focus of infection.
- (e) To prevent chronic otorrhea.
- (f) To prevent radical operation.
- (g) To lessen the period of disability.
- (h) To lessen the economic liability of a chronic ear.

The author feels quite keenly that we have been too quick to ignore or minimize the dangers to hearing. When we remember the large number of chronic otorrheas that come to us daily with hearing defects ranging from ten to eighty per cent in the involved member, and that practically one hundred per cent of chronic otorrheas have some conductive deafness as symptoms and sequelæ, we shall have to admit that the chance of conserving and preserving hearing are greatly increased by early operative interference; this one point alone justifies early operation.

The stigmata under which one lives with a chronic otorrhea creates for us a big economic problem. The author recalls one young woman who visited her aurist in a city thirty miles distant that she might have her ear treated for relief from odors. It is not uncommon to find children, or adults for that matter, with such foul ears that they are not fit to associate closely with others. The insurance companies weigh the evidence carefully before they even consider an applicant who is suffering from a chronic discharging ear.

I shall close with the statement of Dr. Coates,² one of our greatest modern aurists:

"Operation is the safest procedure, and as such is fully justified since the operation itself is not dangerous to life, preserves and conserves hearing, and usually speedily terminates the aural discharge."

BIBLIOGRAPHY

1. E. B. Dench: *Journal A. M. A.*, Sept. 15, 1917.
2. G. M. Coates: *Therapeutic Gazette*, Nov. 15, 1920.

3. E. J. Pyle: *Archives of Otolaryngology*, 1901.
4. Politzer: *Diseases of the Ear*, 6th Ed., page 490.
5. Ballinger: *Diseases of the Nose, Throat and Ear*, 5th Ed., page 777.
6. Virginium Dabney: *Journal A. M. A.*, Aug. 7, 1915.
7. H. Hastings: *Am. Journal of Med. Sciences*, January, 1905.
8. L. P. Calhoun: *New York Medical Journal*, Feb. 13, 1909.
9. Lillie and Barlow: *Minnesota State Medical Journal*, January, 1920.
10. J. Freidman and S. Greenfield: *Medical Journal and Record*, Aug. 19, 1925.
11. Julius Lempert: *Archives of Otolaryngology*, March, 1920.

SARCOMA OF THE TONSIL *

By E. C. HARTMAN, M.D.
Parkersburg, West Virginia

R EPORT of case in child nine years of age: Malignant disease of the tonsil, especially in a child, is seen infrequently. It may occur either as a sarcoma or carcinoma. Sarcoma, while most frequently seen in children, is found to occur at any age. Carcinoma is almost invariably found after the age of forty, and usually seen between sixty and eighty. Malignant involvement of the tonsil as shown by literature is found in eighty per cent among males.

Ross found that of the malignant growths of the tonsil published since 1910, a series of thirty-seven cases were obtained in which a microscopic diagnosis was made. Twenty were carcinoma and seventeen sarcoma.

Of the twenty cases of carcinoma fifteen were on the left side, four on the right side, and one bilateral. Of the seventeen cases of sarcoma, eleven occurred on the right side, five on the left, and one bilateral with a greater degree of involvement on the right side.

Various predisposing causes have been given for malignant disease of the tonsil. Chronic irritation from different sources, septic teeth, previous syphilitic diseases, injuries, and scarring from frequent peritonsillar abscesses.

Symptoms.—Sarcoma usually confines itself to the tonsillar tissue, but may spread to the substance of the soft palate, obstructing the post nasal space.

Subjectively: The patient complains of fullness on one side of the throat with diffi-

culty in swallowing as well as breathing, and some pain.

Objectively: A nodular swelling in and around the tonsil is noticed with a grayish hue to the mucosa, ulceration occurs late in the disease but glandular involvement of the cervical region is an early symptom.

CASE REPORT

L. M. B., male, age 9; referred by Dr. E. T. Goff, Parkersburg, W. Va.

Family history: Father 36, mother 28, living and in good health; three brothers, aged 7, 6 and 4, respectively, are in good health.

Great-grandfather, 70, and **great-grandmother,** 80, on mother's side, died of cancer. One aunt died of carcinoma of breast.

Personal history: Had few diseases of childhood: measles, chickenpox, and an occasional attack of tonsillitis. No history of injury.

Present complaint: Began two and one-half months ago, apparently following the extraction of a second upper right molar tooth, which had been abscessed for some time. A short time afterwards the boy began complaining of difficulty in swallowing, pain, and obstruction to nasal breathing.

Examination: Patient's expression was very anxious, skin very pale and anemic; child was very weak and had difficulty in talking, holding his head to one side, giving the appearance of a case of quinsy at first sight.

The right cervical region showed a glandular enlargement the size of an egg, with several smaller ones along the same chain. Patient had a very offensive breath, and

* Read before the Eye, Ear, Nose and Throat Section of the West Virginia State Medical Association at Fairmont on May 23, 1928.

mouth was dry and difficult to open. Had several bad teeth.

A large amount of swelling in the region of the right tonsil was seen, with evidence of previous incisions, a slight serous discharge could be expressed, but no pus. The mass was fairly firm and there was no fluctuation. On account of the nasal obstruction and the involvement of the soft palate, an X-ray of the sinuses was ordered, but was negative.

A section was taken from the growth and mailed to the Cincinnati Biological Laboratories for a microscopical examination, and the report was wired back "round-cell sarcoma." On account of the extremely advanced condition of the tumor and the extent of the glandular involvement I did not think it advisable to try to use any treatment. The child died about four weeks after this examination.

ACUTE PULMONARY ABSCESS *

REPORT OF TWO CASES TREATED BY ARTIFICIAL PNEUMOTHORAX

By BOYD F. BROWN, M.D.
Huntington, West Virginia

THERE is a sharp differentiation between acute and chronic lung abscess as to treatment, prognosis and pathology. The main etiological factors of pulmonary abscess are:

(a) Intrabronchial—as pneumonia, influenza, foreign bodies, and insufflated infected material.

(b) Extrabronchial—as blood- or lymph-borne infections or infection by extension from surrounding tissues.

Operative procedure in infected tissue is probably the greatest single etiological factor. Lord¹ reported a series of 227 cases, and states that 42% of lung abscesses are due to operative procedures. From the literature Cutler and Schlueter² report 1,908 cases. Of these only 29.6% were post-operative, and only 14.6% followed tonsillectomy. These authors conclude that lung abscess is no more frequent following tonsillectomy than operations in any septic field.

There has been much discussion as to the mechanism of the formation of lung abscess following operative procedure, especially tonsillectomy and extraction of teeth. It has been proved experimentally³ that lung abscess may be produced by placing an infected embolism in a capsule and setting it free in the jugular or femoral vein, or by slowly injecting intratracheally in deeply anesthe-

tized dogs infected material from dental scrapings.⁴

The pathology of acute lung abscess differs from that found in the chronic cases. In the acute stage there is a definite inflammatory zone surrounding the abscess in the lung parenchyma, analogous to an abscess elsewhere in the body. Due to the spongelike structure of the lung, the walling-off process is more difficult than in most other tissues. Unless the abscess ruptures into the pleural space, or into a large bronchus, and drains, the infection tends to spread, forming multiple abscesses, or a much larger solitary abscess. As the process becomes chronic, a fibrous capsule may form, surrounding the abscess. Frequently a large bronchus is eroded and the typical foul-smelling discharge so characteristic of lung abscess is expectorated.

The early diagnosis of lung abscess is at times difficult. The history, X-ray and physical examination are of importance in the order named. From the history alone bronchiectasis and pulmonary tuberculosis can generally be ruled out.

An acute lung abscess may develop without previous infection, but usually there is a history of a cold, pneumonia, influenza, or of some operative procedure. In any acute pulmonary infection running a temperature beyond the average course of the disease, either empyema or lung abscess must be ruled out. If following an operation, the symptoms

* Read before the West Virginia State Medical Association at Fairmont on May 28, 1928.
From the Medical Service, Chesapeake and Ohio Hospital.

of lung abscess usually develop within from four days to two weeks.

Other important diagnostic points from the history are: The presence of a cough, the foul breath, and large daily amounts of putrid sputum, which, when allowed to stand, often separates into three layers. The patient may have had a sudden violent explosive expectoration of a large amount of foul sputum, and this frequently occurs when the abscess breaks into a large bronchus. The presence of elastic tissue in the sputum with repeated negative examinations for tubercle bacilli, and severe localized pain, are also suggestive of lung abscess.

The signs elicited on physical examination depend on the location and size of the abscess. They are often very indefinite. The expansion is generally delayed on the diseased side. On percussion a definite area of dullness is noted if the abscess is of considerable size and near the surface. The patient is liable to complain of muscular pain and soreness. On auscultation little real help can be obtained except that there is a definite solidification. The surrounding lung tissue is generally clear and little moisture is made out. This is a definite point against tuberculosis.

The X-ray is important, not only as a diagnostic aid but also in giving us a definite picture as to the localization and extent of the abscess.

The treatment of lung abscess is drainage by the simplest possible procedure. From twenty to twenty-five per cent of diagnosed cases heal spontaneously. The methods of treatment are medical, surgical, bronchoscopic, and by artificial pneumothorax.

Medical treatment consists of absolute rest in bed, high caloric diet, sunshine, air, and postural drainage. This should always be instituted before surgery is advocated. In this manner the general condition is often improved and the inflammatory zone around the abscess is diminished.

Surgical Treatment.—The operative procedures are varied and depend on the size and location of the abscess, and whether it is single or multiple. If single, a two-stage rib resection with drainage is the common method. When multiple and located in a limited area, the cautery pneumonectomy is

the operation of choice. When the abscess is multiple and involves the greater part of a single lung, either thoracoplasty or phrenicotomy is performed.

Bronchoscopic treatment of lung abscess is most successful in those cases resulting from foreign bodies, and those emptying directly into the larger bronchi.

Although artificial pneumothorax was introduced in the treatment of pulmonary tuberculosis by Forlanini in 1894, Jakobaeus⁵ was probably the first to use this method in the treatment of lung abscess. He reported three cases in 1914. Since this time numerous cases have been reported in the literature. Tewksbury⁶ has reported a series of thirty-five cases treated by artificial pneumothorax.

The opportune time for using pneumothorax is early, before dense adhesions are formed, as these make sufficient collapse impossible and may be a source of danger of hemorrhage from tearing the lung substance. Small quantities of air, often repeated, should be used, giving a gradual drainage of the abscess. Larger quantities are more prone to displace the mediastinum and cause a pressure on the hilum, making drainage difficult or impossible by occlusion of the bronchi. Empyema is also more liable to be produced by using larger quantities of air. However, when this occurs the treatment is the same as in simple empyema.⁷⁻⁸

CASE REPORT, I.

J. L. C., September 26, 1927.

Chief complaint: Repeated attacks of tonsillitis.

Present illness: Has had six attacks of tonsillitis in past three years. For the past year has had a dull pain in lower back. No sore throat for the past month.

Past history: Negative. Has had infrequent colds. Never had pneumonia, pleurisy, hemoptysis or chronic cough.

Physical examination: A well-developed male, age 26, entirely negative except for definitely diseased tonsils.

Examinations: Consisting of a urinalysis, blood Wassermann, and clotting time were normal.

The patient refused a local anesthetic and, two days later, September 28, 1927, a tonsillectomy was performed under ether. Follow-

ing the anesthetic there was slight bronchitis, not severe enough to cause a rise of temperature. On October 7th, nine days after the operation, the patient was awakened with a paroxysm of cough and spat up approximately a half ounce of bright, red blood. Following this the temperature arose to 102° F., respiration became difficult and there was a sharp pain and localized tenderness in the third interspace of the right chest anteriorly, about two inches from the sternum. At this time nothing definite could be made out in the chest except numerous bubbling rales in both bases. The day following the temperature became normal, there was less discomfort on breathing, and the patient seemed improved. The sputum was very scant.

On October 13 the temperature was 99.6° F., on the 14th it was 101° F., and on this day the sputum became purulent and began to have an offensive odor. On October 14, two weeks after operation, the cough became more severe and the right chest more painful. Examination showed a moderate dullness of the right apex anteriorly with only a few rales made out down to the second interspace. The breath was very foul and he had expectorated two ounces during the day. A stereo of the chest showed the trachea in midline, heart, great vessels and diaphragm shadows normal. The right lung showed underneath the first intercostal space and the second rib a dense, soft mottling extending well out into the periphery of the lung. Otherwise the lungs were entirely negative. Diagnosis of abscess of the upper lobe, right lung, was made.

On October 15 artificial pneumothorax was done. On entering the pleura, the pressure was minus three. After 250 c.c. of air had been introduced the pressure was zero. There was no discomfort.

On October 17th and again on the 19th the pneumothorax was repeated, using 300 c.c. of air, with no discomfort. The morning following the last injection the patient was taken with a sudden paroxysm of cough. He stated that something seemed to break in his chest and a putrid, greenish-black pus gushed from his mouth, of which approximately nine ounces were recovered. After this the amount of sputum was very scant. Within one week

the cough and sputum ceased. Pneumothorax was given four more times and the lung allowed to expand. The patient's general condition improved rapidly. He was discharged December 14, weighing 167 pounds—seventeen pounds more than on admission to the hospital.

In the last X-ray plate of the chest, April 15, 1928, the lung was apparently clear, with a slight thickening of the bronchial tree in the right upper lobe. There have been no pulmonary symptoms since leaving the hospital.

CASE REPORT, II.

I. S., male, age 46; first seen September 3, 1927.

Chief complaint: Pain in right chest, cough, and weakness.

Present illness: Onset sudden, two weeks ago, with a severe chill, high temperature, followed by cough and pain in right chest. After the third day the sputum became thick and purulent but no odor was noted. On the fourth day of illness the patient spat up several small, irregular stones about half the size of a pea. Since this time there has been a high temperature, pain on respiration, especially on the right side, and a productive cough with daily expectoration of several small pulmonoliths.

Past history: Pneumonia 20 years ago. Since that time he has been in the best of health. No cough, hemoptysis, or expectoration before present illness. Worked until the date sickness began.

Physical examination: Showed an acutely sick male, temperature 101° F., pulse 120, respiration 30. There was a marked delay of expansion on the right side. On percussion there was a dullness over both bases posteriorly, but more marked on the right. Auscultation showed numerous rales over both lungs anteriorly and posteriorly with definite tubular breathing over the right base. On the left side posteriorly the breath sounds were diminished and there was an increase of whispered voice sounds. The physical examination was otherwise negative. The leucocyte count was 15,000, 80% polynuclear, 18% lymphocytes, and 2% eosinophiles. The urine was normal. Blood Wassermann negative. Tubercle bacilli were not found in the sputum. Stereoscopic plates of the chest

showed dense hilus shadows with small densely calcified areas in each hilus. Below the third rib, right, there was much density, irregular in outline. The diagnosis at this time was bronchopneumonia, unilateral, right lower lobe.

After two weeks the temperature subsided, a slight cough with about two ounces of foul, purulent expectoration in twenty-four hours continued until discharge on October 2, 1927.

On leaving the hospital the patient stated that he felt very well, except he did not gain in strength. On October 29 he noted a severe pain over his right chest just above the nipple and radiating to the back below the scapula. The pain continued in severity, with marked difficulty in breathing, until November 1, at which time he was taken with a violent paroxysm of cough, followed by the expectoration of a large quantity of putrid, black-colored sputum, eighteen ounces of which were recovered. The chest pain was immediately improved. The following day the sputum decreased in amount to less than six ounces of foul sputum. On November 3 he re-entered the hospital.

At this time the temperature was 99° F., pulse 90. There was no marked discomfort on breathing. On examination the chest showed a definite lag on the right side, with numerous rales and diminished breath sounds over the right chest anteriorly from the second rib to the base and extending from the fourth rib down posteriorly.

An X-ray taken at this time showed the trachea slightly to the right of the midline. The heart and great vessels, cartilages, and diaphragm shadows were normal. The right lung showed a dense hilus shadow with a fairly clear-cut line of demarcation low down, extending in an outward and downward course from the upper border of the third rib to the upper border of the fourth and extending about five centimeters to the right of the midline. In the upper lung area a dense shadow was noted, extending from the upper border of the third rib to the lower border of the first rib and extending about two-thirds of the way out in the periphery. In the hilus area were seen a number of small densely calcified areas, apparently pulmonoliths. In the lower lobe, far out in the periphery and

under the fifth intercostal space, there was a very densely calcified area about one by one and one-half centimeters.

The left lung was clear except for a number of small, very densely calcified areas, presumably pulmonoliths. The opinion from the X-ray findings was abscess, pulmonary, unilateral, right, involving the hilus and upper lobe.

The pathology being located toward the hilus, it was decided to use pneumothorax in order to facilitate drainage. On the first attempt, November 5, it was possible to inject only about 100 c.c. of air, owing to adhesions. Four days later, however, 200 c.c. were injected without any discomfort. The lung was then allowed to partially re-expand. The sputum increased in amount and a low-grade temperature was noted. On November 23, 300 c.c. of air were given. There was a marked diminution of sputum after the first twelve hours and the temperature became normal.

Artificial pneumothorax at intervals of from a week to ten days has been continued in this case to the present because it definitely lessens the amount of expectoration and the patient feels better while the lung is collapsed. A chest plate taken May 5, 1928, just before a collapse, showed a marked improvement.

The right lung is apparently clear except for a pulmonolith low down and a dense triangular shadow in the hilus with the apex under the fourth rib. About six centimeters from the midline one or two small pulmonoliths are noted in this area. Apparently none of the stones in the left hilus have been expectorated.

From the second admission to the hospital, November 2, 1927, to January 17, 1928, the patient was given a high caloric diet and rest in bed. In thirteen sputum examinations no tubercle bacilli were found. He continued expectorating pulmonoliths until about two months ago; since then none has been found.

The patient has been working regularly since March 21 and feels well. He has gained fourteen pounds. There is a slight cough and dyspnea on marked exertion. The expectoration is not foul or purulent, and amounts to only about two ounces daily.

SUMMARY

1. Two cases of acute lung abscess treated by artificial pneumothorax, one complicated by pulmonolithiasis, are reported, one with complete cure and the other markedly improved but still collapsed.

2. The indications for artificial pneumothorax in lung abscess are: (a) Early cases, (b) freedom from adhesions, and (c) the

location of the abscess well within the lung, certainly not closely subpleural.

BIBLIOGRAPHY

1. F. L. Lord, Boston Med. and Surg., 192; 785; 788; April 23, 1925.
- 2-3. Cutler, E. C., and Schlueter, S. A., Ann. f Surg., Vol. LXXIV, pp. 239-250.
4. Smith, D. T., Arch. Surg., 14: 231, 237, January, 1927.
5. Jacobaeus, H. C., Treatment of Abscesses in Lungs, Nord. Medizen Arch., 1914, XVI, Nos. 1-4.
6. Tewksbury, W. D., Ann. of Clinical Med., 4: 347-349, October, 1927.
7. Anderson, J. P., Ohio State M. J., 23: 291-294.
8. Eggers, Carl., N. Y. Arch. Surg., 12: 338-378, January, 1926.

ACUTE CARDITIS AND SUBACUTE BACTERIAL ENDOCARDITIS *

By JOHN W. GILMORE, M.D.
Wheeling, West Virginia

JUST who first suggested the term *carditis* I am unable to say, and when the term was first applied I do not know. The term *acute carditis* is at least descriptive of a pathological condition which the practitioner of medicine is frequently called upon to diagnose and treat cautiously. The exact etiological factor producing this disease we have so far been unable to pigeon-hole and classify. Whenever our research workers describe and classify the cause of acute rheumatic fever, then we will have the direct cause of acute carditis. Taking, for example, the symptom complex of acute rheumatic fever, we have a potential cause of acute carditis. The question arises, Just why should some cases of rheumatic fever develop acute carditis as a complication and others do not develop carditis? The same explanation might answer the question, Why did some patient with typhoid fever develop perforation or hemorrhage while another did not? Is the patient with rheumatic fever allergic to carditis, and, if so, what has caused the allergy? Or is it the old story of the virulence of the supposedly infective agent and susceptibility of the patient, or has this etiological factor a predilection to the tissues of the heart? These are questions for us to consider and for the research workers to answer in the future.

I believe that most of us are of the opinion that rheumatic fever is invited into the body

by focal infection, existing possibly most frequently in the tonsils. The greater majority of patients I have seen with rheumatic fever have had previous attacks of tonsillitis and quite frequently we obtain this sort of history: "I was out in the rain or snow, got my feet wet, developed tonsillitis, and now have rheumatism." In support of the focal infection theory, I will give a review here of Kaiser's survey of 48,000 school children:

"The Incidence of Rheumatism, Chorea, and Heart Disease in Tonsillectomized Children.—Kaiser (J. Am. Med. Assn., 1927, 89, 2239) made a survey of 48,000 school children, 20,000 of whom had had the tonsils removed and 28,000 who had not been operated upon. The history pertaining to rheumatic fever, chorea, scarlet fever, and heart disease was obtained, and 1,200 showing signs of rheumatic fever, chorea, and heart disease were examined. Most of the 20,000 children had had their tonsils removed for a period of five years or more. Rheumatic fever, joint pains or growing pains occurred in both groups; 8 per cent of the tonsillectomized group and 10 per cent of the nontonsillectomized group had rheumatic manifestations. Many of the former had rheumatic symptoms before tonsillectomy. The tonsillectomized child not yet infected has a decidedly better chance to escape rheumatic infection over the same period of time than the nontonsillectomized child. Recurrent attacks of rheumatic fever were less common in the group in which the operation had been performed. Chorea occurred only slightly less often, 0.4 per cent as compared to 0.5 per cent, in the tonsillectomized group. The incidence of carditis following chorea was decidedly less in the tonsillectomized children. Scarlet fever occurred in 7.6 per cent of the tonsillectomized children, and in 16 per cent of the nontonsillectomized group. The children whose tonsils had been removed who developed scarlet fever developed considerably less valvular heart disease than those in the control group who developed scarlet fever. Rheumatic heart disease was found in 450 of the 20,000 tonsillectomized children and in 817 of the 28,000 who had not been operated upon. Many of the children in the former group developed heart disease before tonsil enucleation. A

* Read before the West Virginia State Medical Association at Fairmont on May 23, 1928.

Careful analysis of 478 cases of carditis showed that in 83 per cent the condition developed before the tonsil operation and in 17 per cent after the tonsillectomy. Based on a control study of 20,000 tonsillectomized children, the conclusion must be made that the tonsil is a factor in the etiology of rheumatism, scarlet fever and chronic heart disease. The child who has had his tonsils removed is assured a greater protection against those infections than the one in whom the tonsils remain."

Small, of Philadelphia General Hospital, has described an organism which he calls *streptococcus cardioarthritis*. Occasionally he finds this organism in blood culture and quite frequently he finds it in smears from tonsils and pharynx of people who have rheumatic fever. So far he has been unable to develop experimentally in animals the pathology of acute carditis, which includes the demonstration of Aschoff bodies in the heart muscle. To diphtheria we often ascribed an acute toxic myocarditis, but the patients that recovered from the acute stage of this disease generally recovered completely, without any serious permanent damage to the heart.

Article quoted:

"The Heart After Severe Diphtheria.—One of the most important complications of diphtheria from the point of view of prognosis, immediate and ultimate, is cardiac involvement. There are various explanations for the clinical syndrome associated with cardiac disturbance in the course of diphtheria, which vary from the idea held by some that it is due to a toxic myocarditis to the thoughts conveyed by other authors that this cardiac derangement is the result of injury to the cardiac nerves in which the myeline sheath is chiefly involved. Because of the frequency with which diphtheria is considered to leave permanent cardiac disabilities and, incidentally, because of the important etiologic information which must apparently come out of this study, Jones and White (Am. Heart J., 1927, 3, 190) have investigated 100 young individuals who had severe diphtheria from five to eight years before the present examination. These individuals were studied in detail with especial reference to heart findings on physical examination, electrocardiographic tracings on all cases and Roentgen ray examination if there was a possible enlargement of the heart. Two patients only were found to have any trouble even suggestive of heart injury, and in these patients the effect on the heart was apparently minimal."

There are three outstanding causes of heart disease, and without one or more of these causes being manifest by physical signs or history we must proceed with caution as to the diagnosis of organic heart disease. The causes to which I refer are acute rheumatic fever, syphilis, and hypertension. The entire heart becomes inflamed so very frequently in rheumatic fever that the term *acute carditis*

describes the pathology and physical findings better than any other name. The diagnosis of acute carditis is generally readily made. The patient usually has acute rheumatic fever or chorea. Before the diagnosis becomes manifest there is usually a sort of deadening of the first and second sounds of the heart. The heart sounds then become weak and apparently distant. There may be a friction rub felt over the precordium due to pericarditis. The clinical picture of acute carditis is frequently that of a septicemia which may be mild or severe. Enlargement of one or both chambers of the heart may develop early in acute carditis with the accompanying symptoms and signs of decompensation. A delay in conduction of the impulse through His's bundle is common in acute carditis of rheumatic fever origin. Dropped beats may occur due to heart block. The pulse is usually rapid, soft and small. The heart sounds may be clear or systolic murmurs may be heard at the apex or less frequently at the base. The heart murmurs may occur when the valves are intact as well as when they are ulcerated and the seat of vegetations. The murmurs are frequently due to involvement by the inflammatory process of the muscular ring that surrounds the auriculoventricular orifice. The presence of a systolic murmur is no evidence of endocarditis. An acute carditis or myocarditis can produce it just as well. The differentiation between endocarditis and acute carditis is very difficult at the onset of the disease and is not important. The disturbance in the function of the heart is due to the changes in the heart muscle. There is a marked anemia which is associated with a mild leukocytosis—12,000 to 15,000 leukocytes. The blood cultures are generally sterile. The electrocardiogram or the polygraph are of service in diagnosis and should be utilized when opportunity permits such nicety of study. The family of the sick person should be told at the onset of acute rheumatic fever that heart complications are quite frequent and are likely to develop during the course of the rheumatic fever and after the attack is over. Heart disease is the most frequent cause of death in this country, and we must keep our ears to the research workers to hear

just what to do in the prevention and cure of carditis. n

We will now consider another phase of heart disease, which is most interesting and demands that we keep the possibility of its presence in our mind's eye always or we will make more blunders in diagnosis and possibly submit patients to exploratory operations unnecessarily.

Subacute Bacterial Endocarditis

Kirkes, 1852, published the first clinical picture of infectious endocarditis. Wilks, 1868, described a case of infectious endocarditis of six months' duration. The diagnosis was confirmed at autopsy. Lencereaux, 1873, gave a complete description of the outstanding signs and symptoms of subacute bacterial endocarditis. Ropin, about the same time, recognized the disease clinically and described the skin lesions now known as Osler's sign. Leydon, 1882, emphasized the pseudo-malarial type, which condition was re-emphasized by Osler in '93 and Dock in '95. In 1896 West described the first case simulating splenic anemia. Similar cases were reported by Weber in 1910, Osler in 1912, and Riesman in 1918. Austin, in 1899, described the first case due to bacillus influenzae. Harbitz published the first satisfactory description of the gross and histological pathology. This has been enlarged by Libman and others; the bacteriology and serology by Schottmuller, Rosenow, Kinsella and Fox, and Lynch; and the clinical manifestation by Osler, Libman, Billings, etc. The work of the present time emphasizes the varied clinical types and the almost constant relationship of subacute bacterial endocarditis to streptococcus viridans with the characteristic pathological lesions.

There is great confusion in regard to terminology in naming the various types of endocarditis. The student who attempts to read the literature finds various names for the same condition. This is partially due to clinical terms and pathological descriptive terms. The confusion will continue until the infecting organism of "rheumatic endocarditis" is found and until we qualify endocarditis with the name of the infecting organism, such as genococcic endocarditis,

streptococcus viridans endocarditis, syphilitic endocarditis, etc. In a minor way this is being done at present.

Bacterial endocarditis varies widely in its clinical course—it may be fatal in a few days or the patient may live for several years—occasionally patients recover. Most cases terminate fatally in three to eight weeks; others last for months.

Bacterial endocarditis has been sub-classified according to the clinical course; that is, cases living more than three months are classified as subacute bacterial endocarditis, those less than three months, acute, and the term *chronic* dropped or confined to those with sclerosed valves. Such a time classification, if applied to meningitis, would be confusing or would interfere with therapy. In meningitis we qualify with the infecting organism and not according to the duration of the disease.

The commonly accepted term *bacterial endocarditis* was proposed by Libman. It has been called "chronic septic endocarditis," "malignant rheumatic carditis," "rheumatoid form of septic endocarditis," "chronic malignant endocarditis," "chronic ulcerative endocarditis," etc.

Prevalence.—There are a few accurate figures as to the prevalence of the disease. Most writers are agreed that the condition is insufficiently known, is often overlooked, and its frequency underestimated. Libman, 1918, states he has seen nearly 300 cases—again that three-tenths per cent of patients with chronic valvular heart disease die of subacute bacterial endocarditis.

Pathology.—The pathologic changes in bacterial endocarditis are due to two factors: (1) toxic, or (2) mechanical. The cardiac lesions of acute endocarditis show certain peculiarities: (a) Valves already damaged are frequently involved; (b) the mural endocardium and chordae tendineae are frequently involved; (c) there is relatively slight impairment of the myocardium; (d) the pericardium as a rule shows no marked lesions; (e) sub-pericardial ecchymoses are common.

The endocardial lesions tend to be proliferative rather than destructive, and may show small verrucose excrescences or large polyphoid masses. Destruction of the free

edge of the valve may occur. The vegetations vary in color: gray, pinkish or greenish. The vegetations are usually firm, tend to heal, and there may be calcification at the base. The valves of the left side are chiefly involved. The coronary arteries seldom show pronounced lesions. In 150 autopsies of this disease, coronary thrombosis was present in one and coronary embolism in one.

In 150 autopsies of subacute bacterial endocarditis, the myocardium was affected in only thirty: twelve due to toxemia, chronic interstitial myocarditis in eight, acute myocarditis in two, small abscesses in three, focal necrosis in two, and infarcts in two. Clinically, signs of serious myocardial impairment are lacking early, usually appearing only as a terminal event. Extracardiac lesions due to mechanical lesions; chronic passive congestion of lungs in thirty, hydrothorax in eight, congestion of liver in fifty-three, and ascites in four.

Inflammatory lesions expressive of embolic phenomena are seen as abscesses in the myocardium, lungs, kidneys, brain, liver, acute pericarditis, peritonitis, meningitis, and cutaneous abscesses. Evidence of toxemia are seen as cloudy swellings of the heart, liver and kidneys; sometimes associated with fatty degeneration. Acute splenic tumor is common; occasionally the lymph nodes may be enlarged. Embolism is seen in the lungs, heart, extremities, and cerebral vessels. Frequently the embolic manifestations lack suppuration. In 115 infarcted spleens, suppuration was noted in 16.

Kidney lesions—macroscopically moderately enlarged, smooth, surface covered with punctate hemorrhage—the “flea-bitten kidney.” Histologically, embolic focal nephritis frequently in the glomerular capillaries. One or more loops of the glomeruli may be involved; there may be absence of disease in the uninvolved glomeruli and in the uninvolved portions of the affected glomeruli. The lesions in the glomeruli vary—swelling of the glomerular epithelium, followed by fusion of the involved cells into a homogeneous granular mass, which may become organized and covered by epithelium from Bowman’s capsule.

In the acute stages there may be fibrinous exudate and red blood cells and polynuclear

cells in the capsular space. Because of the patchy distribution and freedom of many glomeruli, serious impairment of kidney function does not occur in uncomplicated cases.

Clinical pathological considerations: The localization of the inflammatory process on already damaged valves, the situation and character of the acute lesions frequently cause no change in the pre-existing clinical signs. Occasionally new murmurs are heard; these may develop quite suddenly, particularly when due to rupture of a chorda. The slight involvement of the myocardium is responsible for the frequent absence of signs of decompensation. The embolic extracardiac lesions usually lack suppuration; thus the low fever.

Etiology.—The disease is most common between the ages of 21 to 30; secondly, between the ages of 30 and 40. The question of portal of entry is frequently most difficult to decide. According to the authorities, the teeth, tonsils, and the female generative organs are most frequent. The finding of a primary focus in most patients is practically an impossibility.

The relationship between previous infections, particularly a rheumatic infection, is so frequent that all writers refer to it. In 330 cases there was antecedent history of rheumatism in 140, tonsillitis in 18, and chorea in 10. Other observers think rheumatic infection more frequent. Libman states there is always history of rheumatism. A history of old valve lesions is also common, and was found in 122 of 330 cases. On the other hand, in only 47 cases was it definitely recorded that there was no old cardiac lesion present.

There has always been a question as to whether the mechanical condition of the damaged valve predisposes to an acute process or whether a previous rheumatic infection makes patients more susceptible through the absence of protective substances in the blood, an allergy. The etiology of acute rheumatic fever is unknown. Most observers believe it to be a streptococcus infection. Small believes a streptococcus which he calls streptococcus cardiac-arthritis is responsible. Patients with rheumatic infection have shown various immunological reactions to

his organism. A serum prepared by inoculation of this organism into a horse has produced a rapid fall in fever and a cessation of swollen, painful joints or the choreiform symptoms when injected into patients with acute rheumatic fever or chorea. Small's work, which is recent, requires further study before being accepted.

Histologically, rheumatic hearts show an apparent specific lesion, the Aschoff bodies. These are not present in hearts from subacute endocarditis. Some observers believe that the etiology of acute rheumatic fever and subacute bacterial endocarditis are the same. To explain the frequency of bacterial endocarditis on previous rheumatic endocarditis, some believe patients with rheumatic valvular lesions may have in them a latent focus of bacteria which may take on renewed activity under certain favoring conditions. There are numerous objections to this theory. Rheumatic endocarditis rarely kills in an acute attack, while subacute endocarditis very frequently does; the presence of Aschoff bodies is noted in one and their absence in the other.

The altered mechanism of immunity is hard to prove or disprove. Rosenow states that rabbits that have recovered from infection with his modified pneumococcus (probably streptococcus viridans) have lost the power of destroying this germ.

Bacteriology.—Numerous organisms may be the exciting factor, but in a great majority of cases (95 per cent, according to Libman) is due to streptococcus viridans. The other organisms most commonly present are pneumococcus, bacillus influenza, staphylococcus, occasionally meningococcus and gonococcus. Streptococcus viridans appears in the literature under various names. Libman at one time called it endocarditis coccus, later streptococcus anhemolyticus. Streptococcus viridans usually grows slowly; therefore, blood cultures should not be discarded before a week or ten days. It is relatively resistant to phagocytosis. There is evidence to show the organism apparently immunizes itself to the antibodies of the host. The organisms are usually embedded in the thrombic masses of vegetation. The antibody formation in the host is quite variable.

Symptomatology.—Onset is usually insidious. There is loss of strength and lack of endurance, often some loss of weight, perhaps slight fever and chilly sensations, pains in joints and muscles are quite common, anorexia and gastrointestinal irritation may arise, progressive anemia may develop, and, finally, manifestation of emboli. Backache with hematuria is fairly frequent. The temperature is seldom very high and it may be accompanied with chilly sensations or sweats. The patient usually dies from chronic toxemia, decompensation, or fatal embolic phenomena, such as in the brain.

As the disease progresses the spleen or liver may become palpable, petechiæ are common, particularly under the conjunctivæ or in the axillæ—they usually occur in crops. Renal pain and hematuria may occur. From emboli in brain, hemiplegia or aphasia may develop.

Blood Changes.—The vast majority of cases show secondary anemia, leukocytes are usually not greatly increased, the differential counts vary greatly, polys may or may not be increased. Embolism in large peripheral vessels is not common. Tender fingers and toes usually ascribed to embolic phenomena in capillaries occasionally occur. Clubbing of fingers has been frequently observed.

Course and Duration.—There are frequent remissions in this disease. The fever may disappear for days or weeks. With few exceptions the disease terminates fatally. In 261 cases death occurred between the third and eighth month; in 75 per cent 63 died during the fifth month, nine patients lived over sixteen months, and six lived over two years. The cardinal diagnostic symptoms are, (1) fever, (2) an existence of old valve lesion, (3) embolic phenomena, (4) positive blood culture.

It should be remembered that several blood cultures may be necessary before positive results are obtained, and a series of negative cultures does not exclude the diagnosis of subacute endocarditis.

Prognosis.—Recovery is exceedingly rare. Libman, in 1920, saw four recoveries in over 150 patients.

REPORT OF CASE

Mrs. S. was taken ill June 26, 1927, with chills, fever, general aching, headaches, and

soreness in neck muscles. Had a temperature as high as 102° . Fever continued for a week, then well. On July 14, again had aching. Pain in left kidney region radiating to bladder. Pain for three days. Soreness persisted. Had chills and fever. Nausea before chills, and some vomiting.

Patient was admitted to hospital on July 22, 1927, and died October 12, 1927. On admission she complained of chills and fever, pain in the region of both kidneys—more marked on the right. Fourteen years ago had renal colic, right side. Passed four stones. Physical examination negative except for tenderness over kidneys. Temperature varied from 99.6° to 101.6° , with an evening rise and morning fall.

Blood count: Slight secondary anemia.

Urinalysis: 2-15 R. B. C. per H. P. F.

Urine for tubercle bacilli: Negative.

Malaria; Negative.

Wassermann: Negative.

Blood chemistry: Normal.

X-ray: No stones.

Cystoscopic examination: Diagnosis, right pyonephrosis.

From admission, July 22, the patient stayed fifteen days. Temperature normal the last four days.

Patient readmitted September 2, 1927. Gave history of having felt well for several weeks after previous discharge—then same

symptoms: chills, fever, and aching in the renal region. On admission temperature was 101.2° , with evening rise and morning fall; was as high as 105.3° .

Laboratory examination: Secondary anemia; no leukocytosis. Blood chemistry normal. Blood and urine cultures sterile. Urine for tubercle bacilli, negative. Urine microscopically, 1 to 10 R. B. C. per H. P. F. on repeated examination.

Autopsy: Emaciation. Subcutaneous petechia. Teeth in very poor condition. Heart weighed 230 grams. Subendocardial petechia. On the auricular surface of the mitral valve is a large, reddish-yellow vegetation 3 cm. at the base and 3.5 cm. long, extending into the left auricle. Vegetations on the posterior auricular mural endocardium.

Lungs: Infarcts.

Spleen: 180 grams. Infarcts.

Kidneys: Normal in size. Old infarct of left kidney with healing. Convex surfaces "flea-bitten."

Brain: Two small abscesses, left frontal lobe and one on left temporal lobe.

Blood cultures, ante- and post-mortem, were sterile.

Smears from brain abscesses and cardiac vegetation negative for bacteria.

Sections of vegetation of heart valve showed cocci; definite strep, however, not identified.

BROKEN COMPENSATION AND HEART FAILURE *

By CHARLES O'GRADY, M.D.

Charleston, West Virginia

IT IS a principle of physiology that, whenever you exercise a muscle or use it more and more, the muscle increases in size or hypertrophies. This rule is no exception to the heart muscle. We know that in any form of violent exercise, such as in running or rowing or jumping, the heart has a great deal more work to do and consequently hypertrophies or increases the thickness of its walls in order to be able to carry on. Compensation is a term used to describe what

takes place in the heart when it has some lesion of a valve from disease. The two kinds of lesions which affect a valve are either a stenosis or narrowing or an insufficiency of regurgitation. In compensating for a stenosis we have only a hypertrophy of the wall of the auricle or ventricle while in compensation for an insufficiency we have both a hypertrophy of the wall of the auricle and ventricle and also a dilatation of the chamber. Now, dilatation in this sense must be distinguished from dilatation of the heart which we have in heart failure. When the heart hyper-

* Read before the Kanawha Medical Society at Charleston on June 5, 1928.

trophies in order to overcome a lesion in the valve, it only occurs to any great extent in those of the aortic valve where we have enlargement of the left ventricle, which is the greatest hypertrophy that occurs to the heart. The so-called "cor bovinum" happens in these cases. A man's heart usually weighs nine ounces and a woman's eight. They are sometimes found double this weight in this condition, though they rarely go above 25 ounces. Osler quotes Beverly Robinson as reporting one that weighed 53 ounces.

The hypertrophy that occurs in lesions of the mitral valve is not so great. The auricle usually thickens up as there is more work for it to do. When the hypertrophy is completed we have a fully compensated heart, and this may go on for years or for the lifetime of the individual. MacKenzie does not like the terms *compensation* and *decompensation*, and says that a hypertrophied heart is an inefficient heart. He says these terms are used rather vaguely in medical literature. This thickening of the walls of the auricle and ventricle is nature's method of repair and enables a crippled heart to carry on for a long period. Finally the individual succumbs through heart-muscle failure.

Vaquez gives a long list of causes of heart failure: Overexertion, exhaustion, errors in diet, high altitudes, excessive heat, intense cold, the emotions such as anger and sorrow, certain diseases of the lungs, asthma, pulmonary sclerosis and fibroid phthisis, pleural adhesions, spinal deformities, diseases of the thyroid gland, and the infectious diseases.

The heart of valvular disease, as we have seen, is hypertrophied in order to compensate for the valvular lesions. The hypertrophied heart requires more blood, and so long as the coronary arteries are able to deliver it we have no trouble. But when this fails trouble begins. Some of the symptoms of beginning heart failure are cerebral and show that the brain is not getting its full quota of blood; indecision, giddiness and faintness ensue. Calvin Smith gives all the early symptoms in beginning heart failure with a list of the percentages made from 500 young soldiers with heart disease: Precordial pain, 68 per cent; giddiness, 66 per cent; palpitation, 66 per cent; cough, 34 per cent; dyspnea, 31 per

cent; fainting, 29 per cent, and edema, 7 per cent.

The symptoms of advancing heart failure are the symptoms of chronic myocarditis. The principal symptoms are dyspnea, cyanosis, and the various congestions and edemas, and irregularities in the heart beat. Bradycardia, gallop rhythm, dropped beats, Cheyne-Stokes respiration, auricular fibrillation, and heart block. One must not forget, however, the common factor of sudden death in aortic disease.

Now the treatment of a failing heart should call into action all the skill of the physician, as well as all his sympathy. And we know that he needs sympathy sometimes as well as his patient. Many cases progress to a fatal termination, while in others the physician's best hopes will be realized. The first thing to be considered for the patient is rest. It must be rest in bed. We know from our physiology that the diastole of the cardiac cycle lasts four-tenths of a second, and we have a patient whose heart runs 90 beats per minute when on his feet and only beats 70 lying down; his heart gets eight seconds more rest in one minute. How much more will he get in one hour? Along with physical rest should go mental rest. Then comes diet, but the patient's condition will govern this. If he is obese and an overweight, in addition to his rest a great reduction of his calories will help him. The method of Karel can be used, which is also known as the milk cure. It consists in allowing one liter of milk in the 24 hours or 200 c.c. every 4 hours. This method can be used but for three or four days at a time, and has been found very effective in relieving dyspnea, cyanosis, congestion, edema, and dropsy in connection with the use of Niemeyer's pill of digitalis, squill and mercury, which can also not be used for more than four or five days at a time. Some writers prefer calomel instead of mercury, and many leave out the mercury and replace with strychnia and reduce the dose of digitalis and squill for continued use.

The Oertel treatment consists of exercise in walking, usually up an incline or a hill, and reduction of the fluids and the food. It is usually carried out on a plateau of 2,000 feet above sea level, and the patient is not

required to do much at first, but is encouraged to do more each day as the symptoms improve. It is claimed this treatment helps the fatty heart and reduces the dilatation in valvular disease.

The Schott treatment consists in the slightly resisted exercises and the famous carbonic acid baths. I have used the artificial salts baths made with sodium chloride, calcium chloride and hydrochloric acid, and have gotten good results. You reduce the temperature of the bath each time, beginning at 90° F. and going down to 50° F. A bath can be given every day or second day, and also the time may be lengthened from 10 minutes to one-half hour.

The last treatment is drugs, of which digitalis is the best. He would be a very wise physician who knew exactly how to use digitalis. Dr. Leander Brunton, to whom we owe considerable for therapeutics in heart disease, said that "Fatal syncope has not infrequently resulted from the excessive use of digitalis, and it appears to be more apt to come on when the patient rises to micturate." And the doses of Leander Brunton were small, indeed, compared with what are recommended today. The most conservative is probably Professor Osborne of Yale, who recommends 5 drops every 8 hours; after a few days to be increased to 10 drops twice a day and later 15 drops twice a day, and 20 drops once a day is his largest dose. MacKenzie recommends 20 minims three times a day, and does not favor larger doses, and says this will act in from 4 to 7 days and should then be stopped or very much reduced. One writer recommends 2 minims of the tincture for each pound of body weight, or, in other words, a patient of 120 pounds would get a half-ounce of the tincture in 24 hours. I feel sure that I do not want to be his patient. You get the best results with digitalis in the failure of hypertrophied hearts. Some writers caution about its use in aortic insufficiency, others in fatty degeneration. In the latter you will get little result if the disease is advanced. Auricular fibrillation, called delirium cordis by the older writers, is the symptom par excellence for the use of digitalis. Some writers claim that from 60 to 70 per cent of

failing hearts develop auricular fibrillation. The tincture seems to be preferred by most writers. Others like the powdered leaves in pill form. Still others advocate the infusion of digitalis. This preparation is certainly the most diuretic and generally gives good results in edema and dropsy. Calvin Smith says it should always have some alcohol added to the hot water when making the infusion of digitalis. He says that water alone will not extract the digitoxin and digitalin, which are two of the principal glucosides. In comparing the doses of the tincture and the infusion one writer says that nine minims of the tincture is equal to one teaspoonful of the infusion. I have given fairly large doses of the infusion—as much as a tablespoonful three times a day—in bad cases of dropsy. I have never given digitalis in heart cases except when the patient was confined to his bed, and I feel sure that is the only reasonable rule.

ABSTRACTS

The Middle Ages

By JOHN RATHBONE OLIVER, A.B., PH.D., M.D.

"Mediæval" and "The Middle Ages" are terms that we use in a more or less loose connotation. By them we designate a period in our civilization extending, roughly, from the final disintegration of the "Pax Romana," with the loss of all the old physical and mental achievements, down through the centuries of disorder, in which the stabilizing elements wrought slowly to bring some order out of chaos, until after one or two False Dawns the new and abiding light broke in the minds of men with their rediscovery of the long-lost ancient world and their assimilation of the forgotten treasures of Greece and Rome. Modern scholarship has shown a new and remarkable interest in the Middle Ages. All this new interest must redound to the benefit of the medical historian. Today, as never before, he has a chance to reach, at first hand,

accurate knowledge of many mediæval medical texts, to enter intelligently into the whole spiritual current of mediæval life, and to understand the place in it which his mediæval colleagues occupied. There are two characteristics of the Middle Ages that strike the most casual reader as he works his way through one treatise or "novel" or sermon after another. First, a childish simplicity, a happy credulity to which nothing is impossible if it be only presented by accepted authority, be that authority claimed by the most unlikely person to know anything about the matter in hand. And then there is a brutality—which is, however, not always coarse, but simply outspoken, and which one meets with so constantly in the satirical or parodistic literature. As the basis of all mediæval life was more or less religious, so medicine and religion were often indistinguishably mingled. In the Middle Ages, people took things very literally, if only those same things were said by those whose authority and knowledge were generally accepted. The Middle Ages had not only their general "practisours" but they had their "specialists" also. In surgery, for instance, there were certain men who were famed for their specialized knowledge and technic of one single operation. Naturally there were many quacks of the most preposterous kind. Leaders of mediæval thought, like John of Salisbury, who had studied in France and had some personal acquaintance with the great medical school of Montpellier, speak kindly of physicians, even though they can not help giving them a friendly little dig of passing criticism. On the other hand, the great poet, Petrarch, had a bitter, abiding hatred for physicians. The ancient feud between surgeons and "internal medicine men" was bitter enough in mediæval times, except that in those days the modern state of things was exactly reversed. In the Middle Ages the surgeon was not the dominating, all-powerful figure that he is now. On the contrary, he was a very inferior personage, with whom the "real physician" had as little to do as he decently might. Scattered quotations and illustrations,

taken here and there from unpublished manuscripts or mediæval texts, may give us some general conception of the atmosphere in which our mediæval colleagues lived. Until we get, however, the historical background of their lives, and have some conception of how their minds worked, we can not rightly understand their attitude to purely medical problems.—*International Clinics*, Dec., 1927.

Heart Rupture

A. B. Davenport, writing in the *American Journal of the Medical Sciences*, July, 1928, clxxvi, 1, presents a study of 92 cases of heart rupture. The series includes 35 cases reported since the work of Krumbhaar and Crowell and 57 additional cases from the literature other than that which they consulted. There is a remarkably close agreement in the percentages of the two collections. The average age of the patients at the time of rupture was 59 years, showing that spontaneous rupture of the heart is a disease of the aging. The most frequent site of rupture was on the anterior surface of the left ventricle. In only 50 of the 92 cases was there a report of the condition of the coronaries. In 30 of these 50 cases the rupture was definitely due to coronary disease, while 17 others presented conditions strikingly resembling rupture following coronary disease. It is safe to say that spontaneous rupture is, in the aged, practically always the result of coronary disease with infarction. The exciting causes were varied, some being slight, others violent. Six died during sleep and 4 appeared to be perfectly well before they unexpectedly fell dead. The premonitory symptoms were too varied to allow of a definite diagnosis of impending rupture. The period of survival after rupture was usually very short.—*N. Y. State Jour. of Med.*

TUBERCULOSIS ABSTRACTS

(Copy furnished by the West Virginia Tuberculosis and Health Association)

Artificial Pneumothorax

NO MORE hopeful ray of sunshine has ever come to illumine the dark kingdoms of disease than that introduced into the path of the consumptive through the discovery of artificial pneumothorax, writes Clive Riviere. Recommended on theoretical grounds nearly a century ago—so soon, indeed, as the elasticity of the lung was first clearly recognized—first practiced some sixty years later but again forgotten, it is only during the present decade that it is reaching that place of supreme importance in phthisis therapy which is undoubtedly its due.

Artificial Pneumothorax

Artificial pneumothorax is a surgical procedure whereby an inert gas is injected into the pleural cavity. This causes the lung to collapse, since normally the pleural cavity is merely a potential one with negative atmospheric pressure. When there are severe or extensive tuberculous lesions of the lung which fail to respond to the usual methods of treatment, artificial pneumothorax has proved its value. Collapse puts the lung at rest, retards the growth of tubercle bacilli, and stimulates the rapid growth of fibrous tissue. It is especially indicated when the disease is limited to one side and when the condition has failed to respond to the usual methods of treatment. If not more than one-half of one lobe of the good lung is involved, collapse of the worst

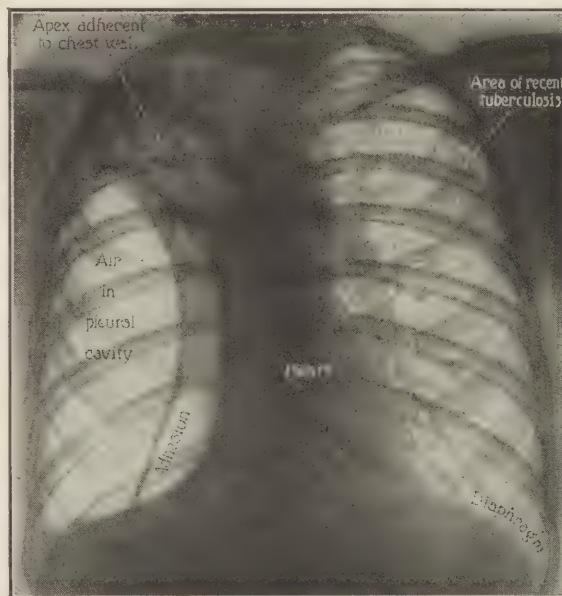
lung is indicated. In recurring pulmonary hemorrhage, the induction of artificial pneumothorax is a Godsend. The procedure is often of value in pulmonary abscess and in unilateral bronchiectasis.

The apparatus for collapsing the lung consists essentially of two glass jars, a

manometer, a large-calibred needle, and the necessary tubing. The puncture is commonly made after novocaine anesthesia, at about the level of the fifth to seventh interspaces in the mid-axillary, or anterior axillary, line. When the needle has entered the pleural cavity, the tube is attached to the manometer, which should register a distinctly negative pressure with oscillations corresponding to the respirations. A very small quantity (10-15 c.c.) of gas is al-

lowed to flow into the pleural cavity. This is repeated every minute or so, meantime watching the manometer, until the patient has received a total of 150-250 c.c. The needle is then withdrawn and the wound sealed with collodion. Two or three days later, a refill of gas is given.

Complete collapse should usually extend over a period of some three to five years, depending on the rate of healing of the lesions.—From *Modern Aspects of the Diagnosis and Treatment of Tuberculosis*, by J. A. Myers.



From X-ray plate showing extensive tuberculosis of right lung and collapse following artificial pneumothorax.—Courtesy J. A. Myers.

THE WEST VIRGINIA MEDICAL JOURNAL

JAMES R. BLOSS, *Editor-in-Chief* - - - - - Huntington

...ASSOCIATE EDITORS...

J. HOWARD ANDERSON
Marytown

WALTER E. VEST
Huntington

C. A. RAY
Charleston

HARRY M. HALL
Wheeling

THE JOURNAL issued on the first of each month. Entered as second-class matter, January 1, 1926. Acceptants for mailing at special rate of postage provided for in Section 1103, Act of October 3, 1917. Authorized July 24, 1919.

Subscription to Members.....	\$2.00 Per Year
Subscription to Non-Members.....	\$3.50 Per Year
Single Copies.....	50 Cents

OFFICERS

<i>President:</i>	
C. A. RAY.....	Charleston
<i>First Vice-President:</i>	
D. G. PRESTON.....	Lewisburg
<i>Second Vice-President:</i>	
E. L. ARMBRECHT.....	Wheeling
<i>Third Vice-President:</i>	
W. C. SWANN.....	Huntington
<i>Executive Secretary:</i>	
MR. JOE W. SAVAGE.....	Charleston
<i>Treasurer:</i>	
T. MAXFIELD BARBER.....	Charleston
<i>Delegates to A. M. A.:</i>	
JAMES R. BLOSS (1927).....	Huntington
HENRI P. LINSZ (1927-28).....	Wheeling
<i>Alternates:</i>	
A. A. SHAWKEY (1927).....	Charleston
HARRY M. HALL (1927-28).....	Wheeling

COUNCILLORS

<i>Chairman of the Council for 1928:</i>	
R. H. DUNN.....	South Charleston
<i>First District:</i>	
H. R. JOHNSON (1-year term).....	Fairmont
C. G. MORGAN (2-year term).....	Moundsville
<i>Second District:</i>	
C. H. MAXWELL (1-year term).....	Morgantown
C. H. HALL (2-year term).....	Elkins
<i>Third District:</i>	
JOHN FOLK (1-year term).....	Bridgeport
I. D. COLE (2-year term).....	Clarksburg
<i>Fourth District:</i>	
J. E. RADER (1-year term).....	Huntington
W. E. VEST (2-year term).....	Huntington
<i>Fifth District:</i>	
J. HOWARD ANDERSON (1-year term).....	Marytown
H. G. STEELE (2-year term).....	Bluefield
<i>Sixth District:</i>	
R. H. DUNN (1-year term).....	South Charleston
H. A. WALKUP (2-year term).....	Mt. Hope

¶ All original articles for THE JOURNAL must be made to it exclusively. Communications and items of general interest to the profession are invited from all parts of the state. Notices of deaths, removals from the state, changes of location, etc., are requested.

¶ Our readers are requested to send marked copies of local newspapers containing matters of interest to members of the medical profession. Name of sender should be given.

CONTRIBUTIONS TYPEWRITTEN

¶ Contract with present printer specifies all articles, communications, etc., MUST BE TYPED.

ADVERTISEMENTS

¶ Advertising forms will go to press not later than the tenth of each month. All advertisements must conform to the standard established by the Council of Pharmacy and Chemistry of the A. M. A.

WOMAN'S AUXILIARY

Mrs. R. V. Shanklin, Gary, President; Mrs. T. H. Harris, Parkersburg, vice-president; Mrs. W. C. Swann, Huntington, secretary; Mrs. W. D. Simmons, Slab Fork, treasurer.

Councillors

Mrs. C. G. Morgan, Moundsville, first district; Mrs. Ralph Maxwell, Morgantown, second district; Mrs. H. D. Price, Parkersburg, third district; Mrs. J. R. Bloss, Huntington, fourth district; Mrs. A. G. Rutherford, Welch, fifth district; Mrs. E. S. DePuy, Beckley, sixth district.

Delegates to Woman's Auxiliary of A. M. A.

Mrs. R. V. Shanklin, Gary; Mrs. B. S. Preston, Charleston. Alternates — Mrs. George Jeffers, Parkersburg; Mrs. W. B. Scherr, Morgantown.

STANDING COMMITTEES

Medical Defense Committee

C. G. Morgan, Moundsville, Chairman; H. A. Walkup, Mt. Hope; H. G. Steele, Bluefield.

Committee on Scientific Work

O. B. Biern, Huntington, chairman; G. H. Barksdale, Charleston; A. G. Rutherford, Welch.

Public Policy and Legislative Committee

R. A. Ireland, Charleston, chairman; R. H. Walker, Charleston; James McClung, Richwood; C. R. Ogden, Clarksburg, D. A. MacGregor, Wheeling.

Committee on Medical Education

John N. Simpson, Morgantown, chairman; W. T. Henshaw, Charleston; W. S. Fulton, Wheeling.

Committee on Professional Relations

John R. Shultz, Charleston, chairman, (1-year term); A. G. Rutherford, Welch, (2-year term); W. R. Goff, Parkersburg, (3-year term); Hugh G. Nicholson, Charleston, (4-year term); E. P. Smith, Fairmont, (5-year term)

Workman's Compensation Committee

W. A. MacMillan, Charleston, chairman; J. Ross Hunter, Charleston; R. H. Walker, Charleston.

Committee on Public Health

David Littlejohn, Charleston, chairman; John Thames, Charleston; Will McLain, Wheeling.

Surgical Section


Robert King Buford, Charleston, chairman; B. I. Golden, Elkins.

Eye, Ear, Nose and Throat Section


I. D. Cole, Clarksburg, chairman; C. L. Jarvis, Clarksburg.

Hospital Association Officers

L. W. Lawson, Logan, president; J. E. Wilson, Clarksburg, first vice-president; R. A. Ireland, Charleston, second vice-president; J. S. Turk, Wheeling, treasurer.



EDITORIALS



Delinquent Members

There are, at the present time, still a number of delinquent members of the West Virginia State Medical Association who have not yet paid dues for 1928. This number is not large and it does not reach the same figure for delinquent members on October 1, 1927. However, the officers of the association feel that the number could be materially reduced if a delinquent round-up was conducted by the various county societies.

There are three months left of this year, and all delinquent members can be reinstated upon payment of dues during that time. With the beginning of 1929, however, all members who have not paid their dues in 1928 will be suspended from the association and can be reinstated only by petitioning their county society as a new member. It is to be hoped that our delinquents will be reduced to a minimum when the annual membership report is made up in December.

Group Insurance

So many members of the Association have written in recently to the office of the executive secretary regarding the group life insurance plan recommended at the Fairmont meeting that it is deemed necessary to publish herewith the status of negotiations now under consideration.

About two months ago circular letters were sent out to members of the association, explaining the group life insurance plan. In these letters were enclosed application cards for the insurance. There were 371 cards returned and are now on file in the office of the secretary. It is necessary to secure seventy-five per cent of the eligible membership of the association, or approximately 600 doctors, to apply for the insurance before it can be booked through any reliable insurance company. Although the plan has not yet been abandoned, it is being held up until some

method can be devised for obtaining the required number of applicants for the group insurance.

Just what the premium rate will be, if the insurance goes into effect, can not be determined until the full quota of applications is received. The premium rate, however, will be based upon the average age of all applicants and will probably be between twelve and thirteen dollars per thousand dollars of insurance.

Aside from the group insurance wherein each member will pay the same premium rate, two other propositions are now under consideration. The first plan calls for four different premium rates according to age groups. The second is a form of wholesale insurance wherein each participant pays a premium according to age, but is not required to undergo a medical examination. Every possible form of group insurance will be fully investigated before any contract is drawn up. Dr. J. Ross Hunter, chairman of the insurance committee, stated that each applicant would be notified by letter just as soon as any definite action was taken.

Remington Award

Professor Charles H. LaWall, dean of the Philadelphia College of Pharmacy and Science and author of "Four Thousand Years of Pharmacy," published by J. B. Lippincott Co. in 1927, earned for its author the Remington medal award for 1928, for the most outstanding piece of work done in 1927 in the interest of pharmaceutical progress. No award had been made for the year 1926.

This medal is awarded annually by the New York Branch of the American Pharmaceutical Association, the jury of award being the living ex-presidents of the American Pharmaceutical Association, seventeen in number. The book has found universal favor, not only in America but also abroad, and not only among pharmacists but also among physicians and law readers as well.



NEWS NOTES OF COMPONENT SOCIETIES



Mercer County

Dr. Harry H. Haggart, who has been associated with Dr. C. T. St. Clair, doing eye, ear, nose and throat work in Bluefield for a number of years, is preparing to move to Cincinnati, where he has made very excellent connections. Dr. and Mrs. Haggart will move to Cincinnati some time this month.

Dr. T. G. Tickle, who formerly practiced in Bluefield and is now taking a three-year course at the New York Eye and Ear Infirmary, was in Bluefield recently, visiting his mother during his vacation.

Announcement has recently been made of the approaching marriage of Dr. W. E. Dickerson, Princeton, to Miss Arline Bird, daughter of Dr. and Mrs. John H. Bird, of Rock, W. Va.

The Raleigh County Medical Society will conduct the program in Bluefield for the Mercer County Medical Society on the 27th of this month, this being a return meeting, the Mercer county society having conducted the Raleigh meeting at Beckley the latter part of August. These meetings are proving very interesting and are well attended.

The general health of Bluefield has been exceptionally good the past few months, with the exception of a few cases of typhoid fever. Practically no contagious diseases have been reported to the health department in this period of time.

Central West Virginia

The Central West Virginia Medical Society, composed of the counties of Braxton, Nicholas, Upshur, Webster, and affiliated physicians of Lewis and Gilmer, held their last session for the fiscal year at Buckhannon on Wednesday evening, September 19, 1928.

A very excellent program was arranged for this meeting. A banquet preceded the scientific assembly, commencing at 7 o'clock p.m., and was held in the Rotary Club rooms. The

scientific discussion was given by the following men: Dr. Jonathan Forman of Columbus, Ohio, on "The Renal Factor in the Diagnosis of Patients with Chronic Gastrointestinal Symptoms"; Dr. E. Lloyd Jones of Wheeling discussed "The Specialist and the Profession"; Dr. S. L. Cherry of Clarksburg discussed "Medical and Dental Cooperation," and Dr. R. B. Bailey of Wheeling discussed "Surgery of the Lungs and Mediastinum."

This is believed to have been one of the best programs offered in the state this year by any county society, and a large number of members and physicians from nearby counties were in attendance.

The Woman's Auxiliary of the Central West Virginia Medical Society attended the banquet on the evening of September 19, after which they held an interesting meeting in the parlors of the Rotary Club rooms.

New officers of the Central West Virginia Medical Society, elected at the September 19 meeting, were: Dr. S. P. Allen, of Webster Springs, president; Dr. J. A. Rusmisse, of Buckhannon, vice-president, and Dr. S. S. Hall, Buckhannon, secretary. Dr. Allen will succeed Dr. M. T. Morrison, of Sutton, who has served as head of the society during the past twelve months.

S. S. HALL, Secretary.

Raleigh County

Dr. Tunstall Taylor, professor of orthopedic surgery, University of Maryland, and surgeon to Kernan's Crippled Children's Hospital, Baltimore, Md., conducted orthopedic clinics at the Beckley Hospital the morning and afternoon of September 7, 1928. Dr. Taylor came to Beckley at the invitation of the Beckley Rotary and Kiwanis clubs, and the members of the Raleigh County Medical Society cooperated in the success of these clinics in professional attendance and the furnishing of clinical material. Orthopedic cases were sent to the Beckley Hospital suffi-

cient time ahead for case histories, X-ray, and other examinations, and reported back on September 7th.

Dr. Taylor addressed the Beckley Rotary and Kiwanis clubs and the Raleigh County Medical Society at a dinner the evening of September 7th at 6:15 P. M., at the Episcopal Church.

To insure an impressive attendance at both the clinic and dinner, it was decided to not hold the regular Society meeting in August, but we are looking forward with pleasure to our program before the Mercer County Medical Society at the Princeton Country Club the latter part of September.

WALTER D. SIMMONS, Secretary.

Monongalia County

An interesting meeting of the Monongalia County Medical Society was held in the library of the Morgantown junior high school building on the evening of September 4, 1928. The essayist was Dr. W. A. Gracie, of Cumberland, Md., who presented a valuable paper on "Fractures of the Elbow." Dr. H. V. King, president of the Monogalia society, presided at the session, and a good attendance turned out to hear Dr. Gracie.

G. R. MAXWELL, Secretary.

Tri-State Meeting

The ninth meeting of the Central Tri-State Medical Society was held at the Hotel Prichard, Huntington, on the afternoon and evening of September 20, 1928. The meeting was well attended and a banquet was served to the members present between the afternoon and evening sessions.

The essayists were Dr. Edward Speidel of Louisville, Ky., professor of obstetrics at the University of Louisville; Dr. Verne C. Hunt of Rochester, Minn., chief of the surgical section of the Mayo Clinic; Dr. T. H. Weisenburg of Philadelphia, professor of neurology and psychiatry at the graduate school of the University of Pennsylvania, and Dr. George Edwin Baxter of the faculty of the Children's Memorial Hospital, Chicago, Ill.

Dr. Speidel's paper covered "Obstetrical Emergencies in the Home," and opened the

afternoon meeting. He was followed by Dr. Hunt, who presented a paper on "Factors of Importance in the Treatment of Surgical Lesions of the Urinary Tract." The afternoon session was concluded by Dr. Weisenburg, who talked on "Some Recent Advances in the Diagnosis and Treatment of Nervous Diseases." Dr. Baxter presented his paper, following the banquet, on "Problems in the Management of the Sick Infant."

F. O. MARPLE, Secretary.

HOSPITAL NOTES

Good Hospitals

The average layman still has no criterion for selection, no visible standard for determining with reasonable assurance when he needs hospital service, that any given hospital is a good hospital, where his interests will be protected. It is still possible for almost any unscrupulous individual to hang out a sign with the word "hospital" on it almost anywhere, and barter on the good name that has been established for hospitals in general through the labor and self-sacrifice of loyal and devoted people who are giving their lives to relieve human suffering. There are still many hospitals which, through inertia, prejudice or a willful disregard of the rights of the sick, are not prepared to furnish the patient with the service and safety which have been made available by the advancement of medical and nursing science and skill.

Much has been done by the American Medical Association, the American College of Surgeons, the American Hospital Association and by allied organizations, but much remains to be done. Betterment can come only through more thorough organization of the hospital field.

To make organization effective we must carry on a more intensive campaign of education of the public. Constant repetition through the press, and through the spoken word, of the points which distinguish a hospital from a boarding house for the sick will gradually build up a body of public knowledge which will automatically eliminate the institution with defective facilities or a faulty

organization. When this knowledge of what a hospital should be becomes common knowledge, hospitals which do not consider the welfare of the patient paramount will cease to exist. When we have taught the public to ask:

"Is this hospital recognized as a good hospital by the authorities of the great medical and hospital organizations?"

"Has it the proper facilities for prompt and accurate diagnosis of my ailment?"

"Has it an ethical and competent staff of physicians?"

"Does it recognize its obligations to the community and to me as an individual in need of sympathetic service in the critical period before me?"

In short, when we have developed the critical viewpoint that is the hallmark of the educated man, then we have accomplished what it is our duty as individuals and as organizations to accomplish.

Only constant effort, constant pressure, against ignorance, indifference and gullibility will bring about the desired result. Legislation may help, but is of secondary importance to education.—*Hospital Management*.

Expert Testimony

Two interesting cases from the Supreme Court of Appeals of West Virginia have recently been reported in the *Journal of the American Medical Association*. The first deals with the qualifications of a physician to testify as an expert witness in a rape case and the second is in regard to damages awarded the plaintiff in an accidental injury case that involved a miscarriage.

In the case of the State versus Brody, the supreme court, in affirming a judgment of death on a conviction of rape, stated that the defendant complained of the trial court's action in refusing to exclude the testimony of three physicians introduced by the state in the nature of expert testimony, on the ground that such witnesses had not qualified to speak as experts. It was shown that one

of the physicians was a graduate of a medical college and had practiced his profession for fifteen years; another was a physician of ten years' experience in general practice; the third testified that he was a physician and had been actively practicing as such for four years. The rule was that an expert need not have all the knowledge possible for one in his class to entitle him to speak, but could testify unless it clearly appeared that he was not qualified at all.

In the same case, the supreme court ruled that to constitute the crime of rape there must be some degree of penetration of the female genital organ by the male genital organ, but any penetration, however slight, of the labia or external lips of the vulva of the female is all that is necessary. The hymen need not be ruptured to sustain a conviction of rape.

In the case of Malone versus the Monongahela Valley Traction Company, the plaintiff obtained a judgment for \$4,500 damages for personal injuries. An instruction told the jury that it might find damages for her personal injuries, and the pain and mental anguish suffered by her because of the injury to and death of the child which was stillborn, and therefrom it could find damages for her injury and loss. For this error the judgment in favor of the plaintiff was reversed, the verdict set aside and a new trial ordered.

The supreme court ruled that when injuries negligently inflicted on a pregnant woman produce a miscarriage, she is entitled to recover damages that will compensate her not only for the personal injuries but also for the mental and physical suffering and any impairment of her health occasioned by the miscarriage, as a proper element of damages so far as it is a part of her personal injuries. She is not entitled to recover for the loss of the child, or its society or prospective earnings. It is quite generally held that the loss of the offspring is not a proper element of damage. When the injury results in a miscarriage, the mother is entitled to damages to compensate her for the pain and suffering occasioned by the miscarriage, but not for the pain and suffering occasioned by loss of the child.

GENERAL NEWS

Improper Diagnosis Suit

In an action for alleged malpractice, the jury returned a verdict for the plaintiff for \$2,750, and the defendant appealed. The expert testimony introduced for the plaintiff disclosed her ailment as Potts' disease, with a destructive process present in the fifth lumbar vertebra and a similar involvement of the fourth, resulting in a permanent curvature of the spine in the lumbar region, with an accompanying rigidity and limitation of movement. The expert testimony further showed that pain in the back is one of the first symptoms; that infection might precede demonstrable destruction of bone by even two years; that a pus sac would form only at an advanced stage; that the usual and customary method of treatment was the immobilization of the back on the first appearance of pain and the use thereafter of hygienic measures to afford fresh air and proper diet; and that if such mode of treatment is followed on the first manifestation of the disease the patient will probably recover within six or eight months, without the formation of any abscess, destruction of bone, or spine curvature.

Briefly, the defendant's evidence was to the effect that he was not called into the case until after the abscess had formed; that he operated in a skillful manner; that the progress made was as favorable as could be expected in such cases; that his employment ended before the more grave injury occurred; and that after the operation he immobilized the plaintiff's back by means of sandbags, although he advised the use of a plaster cast, which the plaintiff's family refused to use.

In affirming the judgment of the lower court, the St. Louis Court of Appeals said: "It was unquestionably the defendant's duty to use reasonable knowledge and care in learning the condition of his patient, in making a diagnosis of the case, and in thereafter employing such remedial measures as were universally recognized by the medical pro-

fession as proper under the circumstances. There was evidence that, when defendant's services were first obtained, plaintiff was complaining of a severe pain in the region of her lower back; that the same was a symptom of tuberculosis of the spine; that the presence of the disease could have been detected immediately by removing the plaintiff's clothing, noting any bulging or curvature of the spine and manipulating with the hands so as to show pain and determine irregularity in the spinal column; and that the uniform treatment was the immobilization of the patient's back when rigidity of pain appears. But the plaintiff's evidence disclosed that the defendant made no manual examination until after the abscess had formed, and that he did not immobilize her back or advise such procedure when he learned of the presence of pain in the infected area. Consequently there was substantial evidence not only that plaintiff was not accorded such an ordinarily careful and thorough examination by defendant as the circumstances demanded, but also that the improper diagnosis thus made was followed by improper treatment, whereby serious and permanent injury result." The court held, also, that the exclusion of testimony as to the defendant's general reputation was not reversible error, since negligence rather than skill was the crux of the case.—*Journal of the American Medical Association.*

Fayette Health Officer

Dr. H. H. Puckett, formerly of Wolf City, Texas, was appointed as head of the recently established Fayette County health unit on August 15 by the Fayette county court and public health council. Dr. Puckett assumed the duties of his new office on August 30 and is making his headquarters at Fayetteville. He received his training in public health work through the International Health Board. He was also in general practice in Wolf City for a number of years.

Graduate Fortnight

Considerable interest has been shown by the medical profession throughout the country in the first "Graduate Fortnight" of the New York Academy of Medicine, on the problem of aging and of old age, which is scheduled for October 1st to 14th, with two sessions daily at the Academy, and clinical demonstrations and lectures at thirty teaching hospitals.

Among the speakers to be present from abroad are Sir Farquhar Buzzard, Regius Professor of Physics at Oxford, and Dr. Vittorio Putti, orthopedic physician of Bologna.

Research Award Made

A gold medal was presented to Dr. Edward Francis, of the United States Public Health Service, Washington, D. C., by the American Medical Association during the meeting recently held in Minneapolis, Minn. The committee on awards considered the research work on tularemia as the most important medical work of the year. Recognizing Dr. Francis as one of the outstanding authorities on this disease, the committee, in judging his work on the basis of originality, made the statement that the medal was being awarded him for his thorough and important scientific contributions to the knowledge of tularemia.

Tularemia is primarily an epizootic of wild rabbits and is caused by *bacterium tularense*, which affects the liver and spleen, producing decay of the tissue cells in these organs shown by innumerable white spots from the size of a pin-point to that of a pin-head to be studded over this surface and resulting in death. Of the wild rabbits offered for sale in the Washington, D. C., market, Dr. Francis examined the livers of 1,000 and found 10, or one per cent, to be infected with *bacterium tularense*.

The disease was first discovered in a ground squirrel in Tulare county, California, in 1910, by Dr. G. W. McCoy, of the United States Public Health Service. It became engrafted into the jack-rabbit population of the west, and then, as a disease of wild rabbits and of man, it advanced steadily across the continent, invading state after state until

now, in 1928, there remains only a solid block of six uninvaded states composed of the New England group.

Although a disease of man, tularemia has now been recognized in forty-two of the United States, in the District of Columbia, and in Japan, but in no other country. Of 614 reported cases, 23 have terminated in death.

Dr. Francis himself fell a victim to tularemia while studying his first case of the disease in Utah. He is now devoting himself to its prevention and cure.

A. P. H. A. Convention

Eleven sections will comprise the fifty-seventh annual convention of the American Public Health Association, which will be held jointly with the meetings of the American Child Health Association and the American Social Hygiene Association, October 15th to 19th, inclusive, at the Stevens Hotel, Chicago, Ill. Sections will be divided into the following main groups: Epidemiology, Public Health Education, Cancer, Vital Statistics, Industrial Hygiene, Public Health Engineering, Child Hygiene, Laboratory, Health Officers, Food Drugs and Nutrition, and Public Health Nursing.

The discussions in each section will be led by an authority in that field. Dr. Edward S. Godfrey, Jr., director of the Bureau of Communicable Diseases of the State of New York, will direct the section on Epidemiology—one of the most important divisions of the meeting. Dr. Godfrey will be assisted by Dr. Alton Pope, of Chicago, who will present a paper on "Fatality in Meningitis."

Convention discussions will be followed by laboratory trips or inspection tours. Eighteen scheduled trips have been planned, and sixty-three optional ones are on the program, so that these tours will offer a wide range of interest and be of value to workers in every phase of health.

Over three thousand delegates and visitors, including physicians from England, Germany, Sweden, Mexico, Canada, and the Canal Zone, will be in Chicago to attend the meeting, which will open Monday evening, October 15th, with a general session at which

Dr. Herman N. Bundesen, president of the American Public Health Association, will deliver the opening address. A second general session will be held on Wednesday, when Dr. Frank G. Boudreau will be present from the Health Section of the League of Nations at Geneva, Switzerland, to speak on "International Health."

Cost of Sickness

The annual capital loss to the people of the United States through sickness, exclusive of nonmeasurable losses due to loss of future wages and reduced earnings caused by slight illness, is \$31.08 per person or \$134.68 per family, according to Homer Folks, vice-chairman of the Public Health Council of New York State. Mr. Folks' estimates were contained in a statement received by the United States Public Service on August 11 from the New York State Department of Health.

Mr. Folks estimated that the total earning power of the United States is diminished by some \$15,000,000,000; 94 per cent of the cost falls on the sick or their families and the remaining 6 per cent is distributed as a community expense, he estimates. The full text of the statement follows:

An extensive study of the cost of sickness in its various aspects and ramifications is being made by a committee of some 40 members representing five broad groups interested in the problem, the medical profession, public health institutions and organizations, economists, and the general public. Dr. Ray Lyman Wilbur of Stanford University is the chairman, and Prof. C. E. A. Winslow is chairman of the executive committee.

The first publication outlining the plan of organization and a five-year program has just been issued. Information regarding the work may be obtained from Dr. Harry H. Moore, director of study, 910 Seventeenth Street, Washington, D. C.

In this connection it is also worth while to call attention to the very able address presented by Homer Folks, L.L.D., vice-chairman of the Public Health Council of New York State and secretary of the State Charities Aid Association, before the International

Conference of Social Work in Paris, July 12, on the "Distribution of the Costs of Sickness in the United States." While Mr. Folks enters into a discussion of the costs of sickness, his study is primarily of the distribution of these expenses "among much larger groups than the sick people themselves and their families."

His estimate places the capital loss to the people of the United States through sickness, excluding the nonmeasurable losses due to loss of future wages and reduced earnings caused by slight illness, at \$31.08 per person or \$134.68 per family, and he estimates that, including these factors, the total earning power of the United States is diminished by some \$15,000,000,000. Mr. Folks estimates that about 94 per cent of the cost falls on the sick or their families, the remaining 6 per cent being distributed as a community expense.—*United States Daily*.

Curbing Epidemics

Keeping schools open during epidemics is a new idea that is gaining adherents each year among health workers. With the development of health, supervision of schools machinery is being created that makes the detection of an incipient case of scarlet fever, measles, whooping cough or diphtheria easier, speedier, and more certain when schools are in operation.

Teachers and nurses are trained to watch for the first signs of illness and report immediately to the school physician. If a child is absent, the school nurse checks up within a few hours to find out whether he has the prevailing disease. In this way many cases receive prompt medical attention that otherwise might never have been reported, either because the parents did not recognize the disease, because they were too poor to call a doctor, or because they wanted to escape quarantine.

What happens when the schools are closed is that children are left free to follow their own devices and they do everything they have been doing except go to school, Dr. W. W. Bauer declares in *Hygeia*, the health magazine of the American Medical Association.

Dr. Bauer describes a hypothetical case in which a child gets scarlet fever. The doctor,

trying to find out how the disease is spreading, learns that the child's school is closed. By dint of much questioning he learns further that the boy has played with boys he did not know; has gone shopping with his mother, and has been across town on a street car to visit his grandmother—all simple explanations of how he took scarlet fever.

Electricity Studied

Satisfactory progress is being made in the work of investigating the action of high frequency electric currents on the growth of tissue cells, according to a report from Surgeon J. W. Schereschewsky, in charge of the cancer investigations of the United States Public Health Service, made public September 14 by the Public Health Service. The full text of the statement of the Public Health Service follows:

The results of the experiments so far tend to the conclusion that there are bands of high frequency currents which are more effective against one strain of cell than toward another, Dr. Schereschewsky declared. Moreover, he said, there may be some relation between the physical dimensions of the cell nucleus and the range of frequencies most effective against such cells.

The experiments conducted so far, he said, relate largely to cancer in mice and fowls. Some difficulty has been experienced in determining the proper dosage of the high frequency currents in connection with studies. —*United States Daily*.

Headache

Every one admits the frequency of headache as a symptom, the danger of which it is occasionally a signal, and the singular diversity of its causes. It is, moreover, a symptom which is too often lightly dismissed with little real effort made at discovering its source. Dr. Drury, through an analysis of one thousand cases which presented themselves at the Evans Memorial, has shown what a careful and painstaking search into the history and physical condition of these patients may reveal.

Headache, in his words, is one of the commonest symptoms of the most diverse complaints, acute and chronic, mild and severe.

The patient presenting himself to the physician with the complaint of headache should be submitted to a minute and complete examination. The role which errors of refraction, paranasal sinusitis, neuralgia, dental defects and migraine play in the causation of headache are fairly patent; it is too often our fault that we ascribe headache to one of these causes and search no further. Too often we fail to realize the existence of intracranial disease; rarely do we conduct searches such as those which have been carried out so extensively at the Evans Memorial, and discover the existence of endocrine dysfunction which may explain the distressing symptom which is presenting.—*New England Journal of Medicine*.

Medical Ethics

In a general way it may be stated that real medical scientists withhold statements of their activities until a real discovery is made, and when a real medical discovery is made it usually appears in the medical press first. It might also be said that the public has never been deprived of the benefits of medical progress through lack of publicity. On the contrary even medical periodicals are often burdened with "preliminary reports" of research activities. Medical literature comes off the press in enormous volumes, but the year book which contains a statement of every achievement of worth is a small thin volume of a few hundred pages.

It is also true that the individual who makes a scientific discovery of real worth always receives his reward from a grateful humanity. We suppose that one of the greatest recent discoveries is that of insulin by Banting. It is interesting to note that no "preliminary report" of his work was published, and certainly the world has received every benefit from his work that it would have received had the announcement appeared under flaming headlines in every daily paper on the globe.

Science is a term which is being used rather loosely at the present time, due, probably, to the conflict, or supposed conflict, between science and religion. It seems to us that the best definition of science that has been written is as follows: "Science is

the knowledge of nature's way of doing things." A scientist, therefore, is a person versed in such knowledge. Mere contact with a piece of research work does not make of any person a scientist. Edison became a scientist by becoming familiar with nature's way of doing things. Medical men become scientists by becoming familiar with nature's way of doing things, and it is being done at the bedside as well as in the research laboratory.

The question has been raised recently as to whether the same degree of progress has been achieved along ethical lines as has been made along scientific lines. On many sides doubt has been expressed as to whether the subject of ethics as related to all endeavor should not be emphasized more than it is in order to place ethical progress on a parity with scientific progress. This question naturally arises: If science should continue to progress and ethics should fail to govern, what would be the consequences? This is a question worthy of being pondered by our ablest men.

Male and Female Ills

That the human female is more often sick than the male, in spite of her longer average duration of life, is one of the apparent anomalies shown by available sickness records for adult persons and by morality records.

The U. S. Public Health Service recently undertook to inquire a little more closely into this excess of the sickness rate among females, and kept under observation a general population group composed of about 8,000 white persons of all ages and both sexes for a period of nearly two and a half years in a typical small city in the middle eastern section of the United States. Records of the kind and causes of sickness were collected, with the result that for the first time there is available information relating to sex differences in the incidence of various diseases at different ages in persons composing a general population group. The results of the study have just been published by the U. S. Public Health Service.

It was found that the higher female sickness rate did not hold true for children

under 10 years of age. Boy babies and small boys were apparently more subject to infectious diseases and to diseases of the eyes, ears, and skin, to colds and other respiratory conditions, and to digestive troubles, than were girls of the same age. But as soon as the adolescent period of life began, the sickness rate of the girls became higher than that of boys and the female rate for practically all diseases was actually higher than that of the males throughout adult life. Women suffer more than men from sickness due to the common types of respiratory diseases, to digestive and nervous disorders, and to diseases and conditions of the kidneys and heart. This in spite of the fact that the death rate among older women is lower than that of older men.

There were some exceptions to this general rule for persons over 10 years of age. One was that the frequency of accidents was greater among males than among females at every age of life. The proverbial greater adventurousness of boys was shown by the fact that in the age period 5 to 9 years the frequency of accidents of all kinds among boys was much greater than that among girls of the same age; but in adolescent ages, the sex difference in this cause diminished considerably, although the accident rate of girls never exceeded that of boys.

The findings of this study corroborate the results of other studies on adults at work, which have been conducted by the Public Health Service in cooperation with certain industrial establishments, and are in accordance with the records of absences among school children due to sickness that have been collected over a period of years.

Eu-Med Unacceptable

Eu-Med is a preparation manufactured by Dr. Tell & Co., Berlin, Germany, and distributed in the United States by The Oralee Company, Cleveland, Ohio.

Eu-Med is marketed in the form of tablets which, according to the trade package, have the following composition: "Coff. 0.05. Phenacetin. Pyrazol. phenyldimethyl. Dimethyl-aminophenazon aa 0.15." In an advertising circular the following statement

of composition is offered: "Coff. 0.05 Phen. Antip. Pyra ca. 0.15." A circular intended for dentists contains the following: "Its components are coffein, phenacetin, calc. sal. (Veronal) of Aspirin and Pyramidon." From these statements it may be concluded that each "Eu-Med" tablets is claimed to contain 0.05 Gm. of caffeine and 0.15 Gm. each of acetphenetidin, antipyrine and amidopyrine.

The following recommendations for the promiscuous use of "Eu-Med" are contained in the advertising issued by The Oralee Company: "As an antineuralgicum, antirheumaticum and antipyreticum 'Eu-Med' has always proven to be excellent in each case applied. It is used for the following symptoms:

As Antineuralgicum: Headaches of every kind (abusive alcohol and nicotine), megrim or sick headache, neuralgia, ischias, herpes zoster, menstruation complaints, postoperative pain, especially teeth, also prophylatic.

As Antipyreticum: For colds, feverish colds, la grippe; in this connection it may be noticed that this antipyreticum causes no profuse perspiration and the 'Eu-Med,' if prescribed in time against la grippe, debilitates all other possible complications.

As Antirheumaticum:: For articular rheumatism, arthritis, as well as for all neuralgic-rheumatic complaints, also as internal adjuvans for external salicyl embrocation." The routine and promiscuous use of "Eu-Med" is encouraged by such statements in the advertising as: "... 'Eu-Med' is an absolutely harmless remedy which can be used without any fear by every physicians and may be prescribed together with any other medicine." A circular intended for dentists states: "This remedy has proven successful in all cases. Nervous pains, for instance, trigeminusneuralgia, headache of every description, toothache, woundache, after the end of a local anesthesia, are eliminated with 'Eu-Med.'" It closes with the following: "The interesting fact that 'Eu-Med' is also a good preventive of cold, with or without symptoms of fever, on account of eminent antipyretical effect, may be of some importance and a

reason for our colleagues to recollect more often the manufacturers of 'Eu-Med.'"

The name Eu-Med is therapeutically suggestive and as stated in the advertising: "The name is short and therefore easy to remember. It means 'good medicine.'" Each tablet has the name "Eu-Med" stamped on it. This with its suggestive name, invites its promiscuous use by the public.

In reporting on a mixture of caffeine, acetphenetidin and sodium bicarbonate in 1918 (Reps. Coun. Pharm. & Chem., 1918, p. 73), it was stated: "The Council holds that complex mixtures of remedial agents are from every point of view inimical to therapeutic progress and therefore to the public welfare. They are especially objectionable because it is impossible accurately to determine the effects which follow the simultaneous administration of a number of drugs having dissimilar actions, and because the practice of prescribing such mixtures tends to discourage careful consideration of the special needs of individual patients without which there can be no rational drug therapy. On the contrary, with the use of such mixtures therapeutic treatment becomes haphazard and mere guesswork." The report brought out that mixtures of caffeine and acetphenetidin may be more effective in certain cases than either drug alone in relieving headaches; that these being active drugs, their dosage should be regulated with especial reference to the tolerance of the patient; that acetphenetidin should be given in the smallest effective doses, preferably using very small initial doses and repeating as may be necessary; and that it is irrational to administer in fixed proportions such drugs as caffeine and acetphenetidin, because their rates of elimination are not at all the same, and their initial doses vary with different patients. The objection to the administration of caffeine and of acetphenetidin in fixed proportions applies still more to the use of a mixture composed of caffeine, acetphenetidin, antipyrine and amidopyrine; further, the administration of two antipyretics, antipyrine and amidopyrine, is utterly irrational.

Eu-Med is unacceptable for New and Nonofficial Remedies because it is a complex, irrational mixture marketed with unwarranted therapeutic claims under a nondescriptive therapeutically suggestive name and in a way to invite its indiscriminate and ill advised use by the laity.—*Journal A. M. A.*

Misinformation

The following communication, which appeared in the September 25 issue of the *Charleston Gazette*, will perhaps be of interest to the members of the state association. The communication was written by Dr. P. B. Wingfield, health officer of Logan county:
Editor Gazette:

I wish to call to your attention damaging misinformation which appeared in your paper Friday, September 21, contributed by Chairman Howard W. Selby of the Palm Beach Red Cross committee.

"Declaring that health conditions are growing worse, Selby said it might be necessary to quarantine the whole area of 100 square miles. Unless bodies are recovered and buried within the next 48 hours, complete evacuation will have to be effected, including relief workers. Fish in the canals are dying by the thousands because of the dead bodies and dead animals, such as rabbits, opossums, and other animals. The odor is becoming unbearable."

The above quotations are rather typical of one who has no medical or public health background, and would not be of any serious consequence if it did not add to the already existing misery of the devastated area. It also produces nation-wide panic, due to the fact that, wherever animals and people live, there must occur from time to time death, and if such information is generally accepted as true, there will follow after major and minor catastrophies, where life of animals and people is destroyed, this feeling of overwhelming disaster from disease.

Why should Mr. Selby believe that a dead horse, opossum, or what-not, would cause disease; and, if so, what disease? It seems evident that there has been a confusion of terms. There is no particular disease which caused

the death of these animals. It was flood water. Death is not contagious; disease is, to a small extent, namely: contagious diseases; and does not, by any means, constitute accidental causes of death which produced the deaths in Palm Beach. It is beyond reason of even the lay mind to assume that a dead rabbit lying on a beach causes disease, any more than a dead rabbit lying in one's stomach. Purification takes place in both instances. As to the fish dying in the river, which he declares is due to dead animals, is most inconceivable, as any one knows fish live on dead animals and this would only increase their food supply. The death of the fish was probably brought about from asphyxiation, just as a man falling rapidly through the air may become asphyxiated.

It may be well to know that Palm Beach either has no health officer, or else has one that is not asserting himself. Such misinformation will cost the county of Palm Beach more money than many years of effective health service.

I hope you will see fit to make some comment on this.

Very sincerely,
P. B. WINGFIELD, M.D.

Date Set for 1929 Meeting

The sixty-second annual meeting of the West Virginia State Medical Association will be at Martinsburg on Tuesday, Wednesday and Thursday, May 21, 22, and 23, 1929. This date was fixed after it met with the approval of the Eastern Panhandle Medical Society, the committee on scientific work, and of Dr. Harry M. Hall of Wheeling, president-elect of the association. The date was officially announced at a meeting of the committee on scientific work held in Huntington on September 20, 1928.

Several changes were suggested for next year's scientific program which should be of interest to the members of the association. Among the most important was a suggestion that the president's address, the oration on medicine and the oration on surgery be delivered at three different general sessions in the order above named. Heretofore the three orations have all been presented on the eve-

ning of the first day of the convention. If this change is made, the evening of the first day will probably be given over to nationally known public speakers, followed by a smoker for the members in attendance.

The precedent set last year of presenting out-of-state speakers for the general sessions and West Virginia doctors for the sectional meetings will probably be followed again at Martinsburg. It was the opinion of the committee on scientific work that all members of the association who wish to read papers at Martinsburg should communicate with the sectional chairmen and request a place on the program. With the request should be enclosed the subject and abstract of the paper to be presented, and all papers will be selected entirely upon merit. The committee felt that much better papers could be secured in this manner than could be secured through invitation. It was further pointed out at the committee meeting that the plan outlined above would give every member of the association an equal chance to secure a place on the program.

Those present at the Huntington meeting of the program committee were: Dr. C. A. Ray, president of the association; Dr. Harry M. Hall, president-elect; Dr. O. B. Biern, chairman; Dr. G. H. Barksdale, Dr. Robert King Buford, chairman of the surgical section; Dr. Walter E. Vest, Dr. T. W. Moore, representing the section on eye, ear, nose and throat, and Mr. Joe W. Savage, executive secretary.

State Nurses to Meet

The twenty-second annual meeting of the State Nurses Association will convene in Martinsburg at the Shenandoah Hotel on September 27, for a three-day session.

Speakers of state and national importance will address the sessions on subjects of vital interest. Among these speakers are Eugene T. Lies, of New York City, representative of the Playground and Recreations Association of America; Miss Mary Roberts, editor of the *American Journal of Nursing*; Dr. John Thames, director of the Kanawha County health unit; Dr. R. H. Paden, director of the division of child hygiene of the State Health

Department; Mrs. Andrew Wilson, of Wheeling, executive secretary of the state board of nurse examiners.

Sectional meetings for the discussion of the following will be held: Private duty nursing, training schools and public health nursing. Three hundred nurses from all sections of the state are expected to attend.

Tri-State Election

Dr. William R. Laird, of the Coal Valley Hospital, Montgomery, was elected president of the Central Tri-State Medical Society at Huntington at the recent meeting held there on September 20. Dr. Laird will succeed Dr. J. M. Salmon, of Ashland, Ky., and will serve until the September meeting in 1929.

Other officers elected at the September 20 meeting of the Tri-State association were: Dr. Robert King Buford, of Charleston, first vice-president; Dr. J. W. Fitch, of Portsmouth, Ohio, second vice-president, and Dr. J. S. Klump, of Huntington, secretary-treasurer. Dr. Klump will succeed Dr. F. O. Marple, of Huntington, who has served as secretary-treasurer of the organization for the past three years.

Glands and Crime

That glands are responsible for criminal acts, as has been contended in numerous recent murder cases, is denied by Dr. Llewellys Franklin Barker, professor emeritus of medicine at Johns Hopkins University, in an interview appearing in *The American Magazine* for October.

"It is true," he said, "that serious deficiency or excess of the glands of internal secretion may in certain cases be a contributing factor in delinquency. However, where glandular imbalance has reached such a state that it causes marked misconduct, the condition has usually shown such distinct symptoms that they are not likely to escape the notice of the family and friends. Such persons exhibit, usually, a number of signs of ill health.

"Moreover, we do not find any large percentage of the men and women confined in

our prisons to be suffering from the well-known and marked types of glandular imbalance. And another point worth considering is that of the thousands of persons studied and treated for gland disturbances in various hospitals through the country and in private practice, not many manifest criminal tendencies. Persons with glands out of order may feel miserable, of course, and some of them are extremely nervous; but similar feelings are experienced in many other bodily disorders without leading the sufferer into crime."

There has been a great "boom" in the discussion of glands recently, said Dr. Barker. There have been remarkable discoveries made in their functioning and unscrupulous persons have put quack remedies, said to be composed of glands, upon the market.

"But under no circumstances," he added, "should gland extracts be taken by any one except under medical supervision. Personally I think the less attention the public pays to exaggerated stories of what has been accomplished with glands and to general literature about glands, the better."

Dr. Barker declared that the highest commendation is due the experimental and clinical work with glands that has been done by eminent scientists, but that most of the reported miraculous changes that have been wrought in the human body through the glands, such as the restoration of youth, have been exaggerated and distorted.

Human Parasites

Medicine is a science so great that unscientific adventures on the part of the ignorant laity are pathetically humorous. Through the centuries men have labored to discover the hows and whys of the ills of the body. Due to medical discoveries, many diseases have become extinct. Many known diseases are under control. Medical progress lessened the death record in the world war to only a fraction of what it has been in previous conflicts.

Looking these accomplishments in the face, it is ridiculous for cobblers, bank presidents, school teachers, stenographers, bookkeepers, street-car conductors, plumbers and other

allied trades and professions and the citizenry at large to presume to tell doctors how medicine should be practiced. What doctor dare tell a plumber how to lay a gas pipe, or a bookkeeper how to find his cash shortage?

There is an army of human parasites seeking to get on the pay roll of the state or government that finds the shortest and easiest route to accomplish this end is to inaugurate social welfare movements and propaganda intended to create "new positions" and that will give them supervision of the health welfare of the people, ever an interesting topic.

Medical men spend years in preparing for the practice of medicine. It is ridiculous to presume that after a man has spent twenty thousand dollars in money and devoted his time up to twenty-eight years of age or more to prepare himself for the practice of medicine that the knowledge he would acquire in his studies and clinical training would be inferior to some social uplifter's medical education, gained largely from correspondence course booklets or abridged school instruction. In these days any one can "learn to be" almost anything through the media of doubtful advertisements and "mail order" instruction in science or art.

There has been an attempt in some states to limit the fee that a doctor might charge for a prescription. If the fee of a doctor can arbitrarily be made one dollar, speaking as an example, for a prescription to relieve pain, there is no telling to what extent the principle can be carried. The recent attempt along this line is illustrative of unsound reasoning. A doctor, for instance, might spend several days in patient clinical and scientific investigation of a patient, bringing into play the most modern methods and scientific instruments and apparatus in order to make a correct diagnosis, spending perhaps several hundred dollars' worth of time and indeed an outlay of a large amount of money. If at the end of his investigation he saw fit to write a prescription his fee could be only one dollar. A law of such a character would be unreasonable and would destroy initiative and pauperize the profession, and eventually reduce available assistance for the sick and ailing to the minimum of capable and responsible skill.—*Illinois Medical Journal.*

Cabinet Representation

Of interest to the medical profession is a resolution recently adopted by the American Medical Editors' Association and the executive council thereof, requesting that a medical officer be placed in the cabinet of the president of the United States. It has been pointed out by the Association that there is a great need for such a cabinet member to look after the interests of the medical profession and to represent the public health of the nation.

The resolution reads: "Be it resolved: it is the sentiment of the American Medical Editors' Association that there should be a medical officer in the President's cabinet at Washington, D. C. That such an office be created and that the interest of the medical profession should be aroused, and that editorials be written, to appear in the medical journals of this country, for the purpose of eventually accomplishing this result."

Propaganda for Reform

TRANSKUTAN—"Transkutan" is marketed in the United States and Canada by Transkutan, Inc., New York City. It is a German product which comes in bottles holding about four and one-half ounces with a gaudy label in German. The method of introducing this German product to the American market is ingenious. While physicians are detailed, newspaper advertising addressed to rheumatic sufferers is also used. Transkutan is claimed to have produced remarkable results in the treatment of influenza, rheumatoid arthritis, neuritis, sciatica and other conditions. The composition of Transkutan is secret. The method of using Transkutan is about as theatrical as the method of its exploitation. The patient gets into a hot bath and the entire contents of a \$5 bottle of Transkutan is poured on the surface of the water. Since examination of Transkutan in the A. M. A. Chemical Laboratory shows that the preparation is essentially a mixture of turpentine and a concentrated solution of calcium and magnesium chlorides, a thin film of turpentine covers the surface of the bath. When the patient is taken from the bath

the film of turpentine will cover the body. He is then wrapped in a blanket without drying or rubbing, placed in a bed, and allowed to sweat. It is obvious that the so-called Transkutan treatment is, for all intents and purposes, nothing but a theatrical variant of a turpentine stupe.—*Jour. A. M. A.*, June 9, 1928.

Certainly if progress is made in medical research and if the ethical principles that have governed, and should govern, the conduct of practitioners should cease to function, the scientific program would be of doubtful benefit to the public.

The public and certainly the lay press labor under a false impression as to what the principles of medical ethics really are. The principles of medical ethics constitute the greatest protection to the public against fraudulent and misleading claims by doctors of charlatans concerning themselves or their remedies. There is not a provision in medical ethics that hinders in the least the free exercise of desire or judgment on the part of the layman.

If the paragraph in the code of ethics relating to the matter of advertising were abolished tomorrow, and every practicing physician or institution allowed to state in the form of advertisement his opinion of himself and his skill in the handling of disease, just what would be the benefit to the public? There is no doubt that the fellow with the largest appropriation for advertising and the best advertising manager, regardless of his skill or ability, would become the most active in practice.

The public might with profit observe the following general rule or truism: The doctor who, out of hope for gain, will violate the provisions of the code of ethics which govern his relationship to his fellow practitioners, will from the same motive in all probability violate those provisions which govern his relationship to his patient.

Shall we adhere to the code or shall it be abolished?—*The Journal of the Tennessee State Medical Association*.

OVALTINE—According to the manufacturer, Ovaltine "is a concentration of nutritive

constituents of malt, milk and eggs, flavored with cocoa." In other words, the product is essentially a chocolate-flavored malted milk to which has been added a small amount of dried egg substance. The company gives the following chemical composition of Ovaltine: "Protein, 14.2 per cent; fat, 8.01 per cent; carbohydrates, 67.9 per cent; ash, 3.76 per cent; organic phosphorus, 1.18 per cent. According to the manufacturers this "new pick up drink from Switzerland" originated in Berne over thirty years ago. Two heaping teaspoonfuls of Ovaltine would produce about 50 calories. A glass of milk has an energy value of 170 calories. The power of inducing sleep, which is stressed in the advertising, is similar to that of other warm drinks taken just before retiring.—*Jour. A. M. A.*, June 16, 1928.

METRAZOL ("CARDIAZOL").—In a preliminary report the Council on Pharmacy and Chemistry states that under the name "Cardiazol" a German product has been marketed by E. Bilhuber, Inc., New York, with the claim that it has actions similar to camphor as "an emergency stimulant and regulatory agent for the heart." The council reports that the name "Cardiazol" was found unacceptable because it is therapeutically suggestive, but that the name Metrazol—a contraction of the chemical name, pentamethylentetrazol—would be considered acceptable. An experienced worker in this field who investigated "Cardiazol" for the council found that the product was a very uncertain respiratory stimulant in conditions of depressed respiration in which carbon dioxide, epinephrine and ephedrine were markedly effective. The council reports that the pharmacologic studies and clinical trials carried out by this investigator, do not give warrant to the enthusiastic recommendations which are found in the published literature, and that there is no really satisfactory or conclusive evidence that the substance is an effective and useful stimulant of the mammalian heart. The council postponed definite action on the product to await confirmatory evidence.—*Jour. A. M. A.*, June 23, 1928.

"Herb Doctor" Arrested

Albert Frost, a negro of Wheeling, W. Va., was recently ordered to leave that city by the municipal court judge when he was found guilty of being an "herb doctor." He was placed under arrest by Wheeling police fine that was imposed upon Frost was suspended with the understanding that he would leave the Ohio county seat immediately.

Dr. McBee Appointed

Dr. T. Jud McBee, of Morgantown, has been appointed chief medical officer in the 201st regiment of the West Virginia National Guard. The appointment was made by Governor Howard M. Gore and carries the rank of major. Dr. R. D. Harman of Kingwood and Dr. J. W. Corbin, of Clarksburg, were appointed to the medical staff, each with the rank of captain.



PERSONALS

Dr. R. L. Hamrick, of Clay, was recently appointed as interne of the Kanawha Valley Hospital of Charleston.

Dr. Gustave Selbach, of Wheeling, has accepted the post of pathologist of the Glendale Hospital, Glendale, W. Va.

Dr. James R. Bloss, of Huntington, was recently elected to fellowship in the Society of Obstetricians, Gynecologists and Abdominal Surgeons.

Dr. Gustave Selbach and Dr. J. R. Caldwell, of Wheeling, have recently returned from Europe. While on their trip, the two Wheeling doctors took a number of motion-picture films of some of the most interesting places on the Continent.

Dr. Wirt B. Wilson, of Charleston, has returned from a short vacation trip to Upshur county.

Dr. R. A. MacMillan, of Charleston, returned recently from his vacation in Canada, where he visited his parents.

Dr. Harry M. Hall and family, of Wheeling, have returned from a motor trip through Virginia and North Carolina.

WOMAN'S AUXILIARY

Auxiliary Work

Fundamentals upon which Auxiliary work for improvement of public hygiene should be based:

(1) Every state, county and city is entitled to a scientific, full-time health department (organized, not to treat the sick but to prevent disease and promote health), adequately financed, free from political domination, and providing continuity of service to a trained personnel so long as work is efficient.

(2) The first and most fundamental job for lay organizations like the Auxiliary is to secure such scientific full-time health departments and adequate health protection, in their state, their county, their city or town.

(3) Where efficient, full-time, scientific health departments do not exist (and only about ten per cent of the rural districts of the United States have anything approaching adequate health protection), health activities must be initiated and carried on by volunteer unofficial agencies; but all such work should be so planned and administered as to serve as stepping-stones toward the full-time official health department.

(4) When the full-time official health department, with workers trained for public health work, has become an accomplished fact, lay organizations should support and cooperate with the official workers and should be willing to take orders from them.

(5) No health department, state, county or city, can do effective work without intelligent cooperation of the public. Such public cooperation depends upon widespread health education. Lay organizations can do this educational work and are needed for it.

The Auxiliary can be one of the most valuable tools for an official health department to use in this work. The Auxiliary can also, by its education of the public concerning the official health department's work and needs, be the means of gradually eliminating or preventing political interference with an efficiently working department, and thus insure to it uninterrupted public service.

(6) Most volunteer agencies do not yet realize the wastefulness of their individualistic efforts. One of the first things the Auxiliary should do is to work for this suggested change of attitude in other volunteer women's organizations. Health officials know that it is not always the work which makes the greatest emotional appeal to the public which most needs to be done. Unfortunately, most women do not know this. This is something the doctors' wives might well undertake to teach other women. The National Auxiliary recommends, therefore, that each State Auxiliary undertake, under the direction and with the help of the public health committee of the State Medical Association, a study of its committees on education and public health; that it devise means of acquainting all the state board members with the result of the study, and that educational work for the county auxiliaries be based upon the conditions found. In states where all is well and where time has developed good official health machinery and good health conditions, general knowledge of the fact will tend to prevent interruption of the excellent work, and will be a source of satisfaction to the women of the state.

(a) In those states where there is much yet to be done, this investigation will indicate what sort of work needs doing first. For example, the Auxiliaries would, without doubt, wish to tackle, as their first job, the ninety per cent birth registration problem.

(b) In those states in which the state health department believes the County Health Unit to be the solution of the rural health problem, the county auxiliaries should be encouraged to take as their chief work such persistent and widespread education of the public as will gradually create a general demand for the full-time county health department.

(c) In those states where the rural health work is directly done "long distance" by the state health department, auxiliaries can do intensive local health education work which would be impossible for the state department without intelligent local cooperation.

The West Virginia Medical Journal

Directed and Edited by the Committee on Publication

[The Committee on Publication is not responsible for the authenticity of opinion or statements made by authors or in communications submitted to this Journal for publication. The author or communicant shall be held entirely responsible]

JAMES R. BLOSS, *Editor-in-Chief* - - - - - Huntington

ASSOCIATE EDITORS:

WALTER E. VEST
Huntington

HARRY M. HALL
Wheeling

J. HOWARD ANDERSON
Martown

C. A. RAY
Charleston

MR. JOE W. SAVAGE, *Secretary-Business Manager*, Charleston

Entered as Second Class Matter, January 1, 1926, at the Postoffice at Charleston, West Virginia

Volume XXIV

NOVEMBER, 1928

Number 11

ARTHROPLASTY OF THE KNEE *

By WILLIS C. CAMPBELL, M.D.
Memphis, Tennessee

ARTHROPLASTY of the knee is a surgical procedure for the purpose of reconstructing a new joint when ankylosis has occurred. The object of this procedure is not alone to prevent recurrence of fusion between osseous surfaces after the joint has been produced, but to restore function to all the component parts, as the muscles, ligaments, tendons, and fascias. The operation is only the first step in the program of reconstruction as careful systematic after-treatment is essential to success.

There are two types of ankylosis—fibrous and osseous—the difference between which is only one of degree and not of kind. Peri-articular restriction of motion by contraction of soft parts is often associated, and requires careful consideration.

The indications, contraindications and limitations of the procedure vary to some extent in the different joints, but for the knee may be enumerated as follows:

1. Arthroplasty may be considered routinely when only two conditions, acute pyo-

genic infection and trauma, are the causative agents of ankylosis or restricted motion. It has been found that the etiology in a very large percentage is an infection by pyogenic organisms, as the streptococcus, staphylococcus, gonococcus, and pneumococcus. These organisms, in primary intra-articular infections, erode and disintegrate the cartilage and superficial bone from within, but do not invade the shaft to an extensive degree. That all evidence of acute infection must have subsided before operation is such a well-known surgical maxim as hardly to be worthy of mention. Trauma, or the crushing of joint surfaces, tearing of the periosteum and multiple fractures, are so seldom causative agents of complete ankylosis in the knee as to be almost negligible. However, when incongruity of a joint following comminuted fractures causes pain on movement, arthroplasty is indicated, although considerable range of motion may be present.

2. Multiple ankylosis, even as the result of a pyogenic infection, obviously renders the problem more difficult and the prognosis

* Read before the Surgical Section of the West Virginia State Medical Association at Fairmont on May 28, 1928.

doubtful; the after-treatment so essential to restoration of function may be inhibited by ankylosis of other joints.

3. In monarticular tuberculous joints, operative procedures within the joint are usually contraindicated; the probability of lighting



Fig. 1. End result of arthroplasty of knee five years after operation, showing complete voluntary extension.

up a latent tuberculous infection is well known and should be sufficient warning. In ankylosis of both knees, the disability is so great that even the risk of a recurrence of tuberculous infection is warranted. After tuberculosis of the knee solid osseous fusion is rare; however, in those in which osseous fusion has been induced in the early stage of the infection by open operation before extensive destructive changes have occurred, there is a greater problem of eradication of the pathological process. It is, therefore, conceivable that in future years arthroplasty will be increasingly indicated in cases of this type and the scope of the procedure in the knee will be materially enlarged.

4. Arthroplasty may be employed in low-grade, progressive arthritis, as rheumatoid arthritis and arthritis deformans, but the prognosis is not favorable and at present the procedure in such cases is in the experimental stage.

5. Position is an important factor. Ankylosis in full extension, or not over 30 degrees flexion, is more favorable to arthroplasty. Flexion contracture of over 80 degrees renders the result more uncertain.

6. Shortening of more than three inches from destruction of bone or lack of growth contraindicates mobilization, as further excision of bone would be required and the end would not justify the means.

7. Abnormal osseous structure, as demonstrated by the X-ray, may be an important factor in determining the prognosis and indications for arthroplasty. The chances of success are decreased when the structure has been transformed for one or more inches



Fig. 2. Same as Fig. 1. Showing range of flexion.

adjacent to the articular surfaces. Old, dense, eburnated bone, when found for a considerable distance on both sides of the joint in the bones forming the articulation, is not a favorable soil for the reproduction of a movable joint. Such a condition is usually caused by a virulent osteomyelitis, the result

thereof being a low-grade bone tissue which bears the same relation to a normal bone that fibrous scar tissue bears to normal soft tissue. Healthy, spongy bone should form the articular surfaces of the new joint. Osteoporosis or bone atrophy from disuse should disappear



Fig. 3. Result of arthroplasty three years after operation, showing active extension.

and the structure should return to normal when the position of the limb will permit functional use. As a result of functional adaptation of the osseous structure after many years of complete loss of motion, there may be formed a medulla or central canal completely traversing the joint from above downward and surrounded by cortex, which is developed by the transformation of cancellous bone into dense bone. In such cases, sufficient base may not be obtained to construct a satisfactory joint, and, further, the restoration of function to the atrophic muscles would be difficult.

8. Extensive scar tissue, with adhesion of the skin to the bone, renders the procedure unsuitable unless preceded by plastic measures to completely invest the joint with soft, freely movable tissue. Attempts to close such defects at the time of arthroplasty invariably meet with failure by relighting of the infection or by sloughing of the tissue.

9. The most favorable age is from adolescence to forty, although age is not so much a question of years as of the character of the tissues of the individual patient. Arthroplasty is contraindicated in children as the epiphyses may be traumatized by operation,

and, further, it is impossible to secure proper cooperation in the after-treatment.

10. In large, obese individuals, especially women, the musculature and ligamentous structures are always deficient. In this type, the ligaments should be conserved and great care should be taken to remove as little bone as possible in making the joint space, as loose, flail joints are more likely to occur.

11. In the selection of cases for arthroplasty, the social and financial status of the individual must be taken into consideration. The procedure may be employed in all young adults whose occupations are not hazardous or in those who can be rehabilitated.

The stability of the knee joint depends entirely on ligaments on all four sides for support, therefore the restoration of function



Fig. 4. Same as Fig. 3. Showing 80 degrees flexion of knee.

to an ankylosed knee is more difficult than in any other joint. On this account, and because of the large percentage of failures which followed early effort in this field, surgeons have been reluctant in attempting arthroplasty of the knee.

No attempt will be made to describe in detail the author's method, as reference can be made to former publications. The technique of the operative procedure differs in individual joints, as does the anatomy and the function. In the early arthroplasties a



Fig. 5. Result of arthroplasty three and one-half years after operation, showing voluntary extension.

minute duplication of the normal joint surfaces was attempted, but after considerable experience, beset with a high percentage of failures, it was discovered that simplicity is a real asset and that our efforts should be directed toward the reproduction of function and not mere anatomic details. For instance, in the knee joint, one large condyle in the femur and one shallow concave tuberosity on the tibia, with the removal of as much bone from the posterior surface of the patella as is consistent with tensile strength, will secure a hinge joint that meets all requirements. The amount of bone excised is variable in different joints, and is influenced by certain factors in the same joint. All operators agree that there should be an interposition of tissue between the raw surfaces in certain joints. Free fascia lata is by far the most commonly employed. The plastic rearrangement of the soft tissues must permit free motion, or the entire purpose of the procedure is defeated.

A description in detail will be given of the after-treatment, as this is most important and cooperation with the family physician is frequently essential. Immediately after operation, moderate traction is applied and the limb is placed in a hinged Thomas knee splint, locked in the extended position. No

motion is permitted until the operative wound has entirely healed. This usually requires about ten days. At the end of that time a rope is passed from the center of a hoop of steel which is joined to the splint at the level of the joint and attached above to an overhead frame. A second rope is fastened to the lower extremity of the Thomas splint, passing through a series of pulleys to the head of the bed. By adjusting these two ropes, the desired angle may be maintained, and by gravity of the leg under direct control of the patient, active and passive motion may be instituted. The patient soon finds that considerable motion is possible without pain. The after-treatment does not require excep-



Fig. 6. Same as Fig. 5. Showing range of flexion of knee.

tional fortitude on the part of the patient if function is cultivated gradually.

Great care should be taken to increase motion early, though not too fast. At the end of 30 days there should be not over 30 degrees passive motion in the knee, and at the end of 60 days not more than 40 degrees. If motion

is increased too rapidly, the atrophic ligaments may become overstretched. Furthermore, if osteoporosis occurs, which is a frequent complication, the osteoporotic bone will be compressed, increasing the joint space and causing irregularity, as well as adding to the danger of producing a loose, flail joint.

Complete voluntary extension is essential; 60 to 80 degrees flexion gives the best function and a member which can be used for all practical purposes.

If the joint is stable at the end of six weeks, the splint is removed and walking is permitted with a Thomas caliper brace with adjustable joint at the knee for gradual increase of motion. As long as there is the slightest osteoporosis, a portion of the weight should be borne by a Thomas ring. Full weight-bearing should not be allowed until the structure of the bone is practically normal. Disastrous results may occur as late as nine months after operation, due to flattening of the articular surfaces. Weight-bearing without support is not advisable until a fair degree of power has been developed in the quadriceps muscle. Extreme care must be given the re-education of the extensor group of muscles; the flexors must also receive due attention. When the patient begins to walk, the knee should be diligently exercised until the maximum power has been restored.

Brisement force is unnecessary and, in our opinion, has little if any place in the after-treatment; however, if employed in resistant cases, not more than 10 degrees increased motion is induced while the patient is under anesthesia; otherwise, a severe reaction may impede the progress of the treatment.

Very often, after six weeks or two months, the joint will be quite tender and irritated and ankylosis will appear to be on the verge of recurrence, regardless of all treatment. In such cases, rest for several days, followed by cautiously increased exercise, will usually produce marked improvement. Many cases discharged from the hospital as apparent failures were observed months later and found to have a very excellent result with satisfactory range of motion.

The counterpart of arthroplasty is often demonstrable clinically and by the roentgenogram as a result of certain affections of the

joints, as trauma, tuberculosis, and pyogenic infections; in such conditions a joint may be practically destroyed but a good functional joint salvaged or reformed by nature. Also a somewhat analogous condition is observed in those ununited fractures in which pseudoarthrosis has been induced. Specimens removed at operation show a definite joint, which is covered by fibro-cartilage. A lubricating fluid may be present but no definite synovial membrane can be demonstrated.

There has been much speculation as to the physiology and histology of an ankylosed knee in which function has been restored by arthroplasty. Recently the author had occasion to incise one successful arthroplasty of the knee one year after operation, in which the findings were as follows:

The patient was a girl, aged 22 years, who had acute infectious arthritis, of pyogenic origin, in January, 1925, followed by complete bony ankylosis of the left knee. Routine arthroplasty was performed on November 22, 1926. She had an uneventful recovery, but at the end of one year she complained of slight catching or locking of the joint and returned for further treatment. On examination at that time there was about 90 degrees flexion and complete and powerful extension. The patient walked without limp, and there was no undue laxity. An exploratory operation was carried out on December 8, 1927.

An internal lateral incision was made into the left knee through the former operative scar. The skin and superficial fascia were found to be normal. The capsule and peri-articular structures were much increased in thickness, possibly about one inch. On passing through the capsule, a definite joint space about one-half the capacity of the normal knee was reached, which extended between the articular surfaces of the tibia and femur well under the patella and quadriceps tendon. A few adhesions were found between the quadriceps tendon and the posterior wall of the cavity, but these did not interfere in any way with movements. A very small amount of joint fluid of straw color was observed; this was less than was found in the normal joint, but was sufficient for lubrication. The articular surfaces were smooth, glistening, regular, and covered with a dense layer of

fibrous tissue resembling in every detail the free transplant of fascia lata which was interposed at the original operation.

Sections were removed from the inner aspect of the articular surface of the lateral condyle and from the inner surface of the capsule for microscopical examination. The section from the articular surface was composed of three layers, or strata, from without inward, a dense, fibrous layer, a well-defined fibro-cartilaginous layer and bone. The fibrous layer contained chiefly dense but irregular fibrous tissue with comparatively few cells, but the appearance of this layer had evidently been affected by the acid employed as a decalcifying agent. Beneath the fibrous layer was a well-defined and very regular strata of fibro-cartilage with a homogeneous matrix. The cells had been to a large degree destroyed by the acid necessary to preparation, but there were numerous small vacuoles from which the cells had evidently been displaced. At places there were many fibrous bundles passing from the cartilage to the osseous layer, and occasionally evidence of a well-defined fibrous layer between the cartilage and bone; thus in some places making four layers. The osseous strata was composed of normal cavernous bone. In the section from the lining of the cavity were evidences of well-defined villi, which were composed of premature fibrous tissue of a very cellular nature. The surfaces were covered with a definite layer of cells which were very irregular in shape and could not be designated as endothelium and were probably young fibroblasts. It is possible but not probable that there may have remained remnants of the normal synovial membrane which had not been destroyed by the pyogenic infection.

From these findings it is quite evident that a new functional joint was formed. In all probability, the investing membrane becomes in time absorbed at the point of greatest contact, being substituted over the articular surfaces by cartilage. In fact, a complete new joint with synovial membrane is produced, which, to some extent, differs from the normal structure. The most interesting feature is that the fascia lata had apparently remained intact and had acted as a perma-

nent investing membrane, which is contrary to all former deductions based upon animal experimentation.

A series of roentgenograms after arthroplasty demonstrates that there is a new joint between the femur and tibia and between the patella and femur; for a period of three to six months after operation osteoporosis or bone atrophy is usually present, after which the osseous structure returns to normal. In four cases there was a definite flattening and sloughing off of a small portion of the external condyle. This may be due to uneven distribution of weight by the removal of too much bone from the internal condyle in an effort to prevent valgus, or possibly there may have been an impairment of the circulation by too extensive dissection of the lateral ligaments, also weight being borne before the structure had returned to normal could easily depress or flatten the surface if osteoporotic. In only a very small number of cases was there extensive reaction by osseous proliferation, or osteo-arthritis, but when present was found usually to follow mild infection. This reaction was found to be a sequella in those cases of an acute infectious arthritis in which there had been a greater degree of osteomyelitis than usually occurs. The statement has been often made that osteo-arthritis or osseous proliferation is common in joints reclaimed by arthroplasty, but from these observations in the knee the evidence to the contrary is preponderant.

There may be no definite relation between the efficiency of the joint and the appearance as demonstrated by the roentgenogram. An inefficient joint may show an even contour, or a good functional and durable joint may demonstrate the reverse. However, those with a well-balanced, smooth and even articulation are in general the best functional joints.

A gross compilation of results of arthroplasties of the knee would be misleading, as there are so many factors which materially influence the prognosis; but in well-selected cases an excellent function can be obtained in from seventy-five to ninety-five per cent.

Unless a joint can be produced that is stable, durable, efficient and painless, a stiff joint in a good position is preferable.

An estimate of the results of arthroplasty of the knee should be expressed in the terms of function and endurance, and not in degrees

of motion. As more experience has been gained by observing the complications and important factors in the evolution of the procedure, the operative technique and after-treatment have been revised and the scope materially increased.

ARTIFICIAL PNEUMOTHORAX: Indications, Contraindications, and Complications *

By WALTER E. VEST, A.B., M.D., F.A.C.P.
Huntington, West Virginia

PROBABLY the most hopeful aspect of the therapy of pulmonary tuberculosis in the past decade has been the application of operative procedures in the treatment of the disease. Artificial pneumothorax and thoracoplasty are gradually becoming more generally used and their actual value more widely appreciated by the profession at large. The favorable results following the use of these treatments in suitable cases afford the ray of sunshine now beginning to pierce the gloom formerly surrounding advanced tuberculosis, the stage of the disease hitherto looked upon as well-nigh uniformly fatal. We shall discuss tonight only the former of these modes of treatment.

Artificial pneumothorax was first suggested by James Carson of Liverpool over a century ago; in 1821, to be exact. He demonstrated its possibility by animal experiment and urged its use in tuberculosis on theoretical grounds. Eleven years later James Houghton reported great improvement following spontaneous pneumothorax in a case of advanced phthisis. Nothing came of these observations until 1880, when Toussaint revived the idea of collapse on clinical grounds. Four years later Potain actually treated a case of spontaneous hydropneumothorax by withdrawing the fluid and injecting sterilized air. He later treated two other cases and reported all three in 1888. The same year Forlanini, generally looked upon as the father of pneumothorax, who had been urging the method for six years, began its actual practice. Potain devised a

manometer for gauging the intrathoracic pressure. Likewise he urged the use of nitrogen as the most inert and least absorbable of the gases available for lung compression. Forlanini, who had announced his use of pneumothorax in 1894, continued his work but did not publish any definite results until 1906. Saugman combined the manometer with the pressure instrument in 1908. The method was first used in America by John B. Murphy of Chicago in 1898, but was very slow in gaining recognition by the profession, and came into anything like general use only in the last decade following the publication of Riviere's classic monograph in 1917.

Great care and judgment must be exercised to select only suitable cases for collapse. In the average run of tuberculosis patients only a comparatively small number will be found proper subjects for gas therapy. Keller puts the incidence at seven per cent. Ferrio, in 700 consecutive cases, found slightly less than six per cent fully suitable. Among 210 examined by Fishberg were found 22, or ten per cent, available, although he believes this too high for the average. Bernard's cases ran 3.5 per cent and Courmont's 9 per cent.. When everything is considered, in the average tuberculosis clinic the percentage of "suitables" would probably vary from five to eight per cent.

The first indication we ordinarily believe to be a severe unilateral involvement with the contralateral lung practically free from disease. Riviere believes these cases to be primarily hilum tuberculosis in the adult and

* Read before the Logan County Medical Society, Logan, West Virginia, April 18, 1928.

that there is a widespread involvement before definite symptoms appear. According to Straub and Otten, two prominent findings in this variety of the disease are: (1) the low level of the dense pathology and consequently of cavitation; and (2) the appearance of signs first over the front of the chest. Activity of any considerable degree in the opposite lung, as shown by physical signs, means that pneumothorax is unwise, and in any case stereoscopic plates should confirm the physical examination as to the practical absence of activity in the better lung.

When the lesion is apical in origin, the probabilities are much greater that there will be early involvement of the opposite side. Cavitation when present is high up and adhesions are much more likely to prevent complete collapse than in the hilum type. Accordingly, in this class of cases the collapse should be done comparatively earlier than in the first type considered. Here, too, there should be no definite demonstrable activity in the contralateral lung and latent adhesions there extending beyond the upper lobe generally contraindicate collapse.

In general, given a patient anatomically suited to collapse and not responding to rest for a reasonable period, pneumothorax should be undertaken; and this is especially true if cavity of any consequence is present.

Hemoptysis, if severe and not controlled by ordinary measures, calls for pneumothorax. Great care must be taken to be sure of collapsing the lung from which the hemorrhage originates, otherwise the bleeding may be accentuated. If undertaken primarily for hemorrhage, usually more gas is required than is commonly given; that is, a fairly complete, prompt collapse is needed.

Pleurisy with effusion is at times better controlled by the introduction of gas than by any other method. The cases suited to this treatment are those with large effusions which recur rapidly despite aspiration. In such instances Peers recommends that 100 c.c. of air be injected for each 200 c.c. of fluid withdrawn.

A non-tuberculous indication for pneumothorax may be seen at times in lung abscess. Tewksbury has been especially successful in his treatment of this condition by gas com-

pression. Many chest men, on the contrary, doubt the propriety of ever collapsing an abscess. On theoretical grounds, however, it certainly should be as much indicated in cavity of pyogenic origin as in one due to the bacillus of Koch; for in each instance the mechanical approximation of the cavity walls and the expression of pus with the consequent obliteration of the cavity space is the objective. Experience leads us to believe that, in properly selected cases, collapse is far the most satisfactory treatment available. The following points are essential, however: (1) The case must be seen early; (2) the lesions must be deep in the lung, or at any rate must not be closely subpleural; (3) adhesions must be practically lacking.

In addition to a tuberculous involvement of the opposite lung, advanced emphysema and asthma are contraindications, as is dyspnea if associated with cyanosis. Serious heart disease, especially of the right heart; serious renal involvement, and diabetes definitely contraindicate collapse. Laryngeal involvement is not a contraindication, but intestinal tuberculosis, unless very mild, is usually made worse by the treatment, as is the case with acute miliary disease.

One of the most distressing complications of chest puncture is pleural shock. The frequency of this accident is not definitely known, but Saugman reports 5,400 punctures in 16 of which there was shock, or one in 337 punctures. Sachs, in studying the records of 1,058 pneumothorax patients, found 26 cases of shock, approximately 2½ per cent. Forlanini had it to occur in 12 out of 134 cases, or nine per cent. The symptoms come on usually with dramatic suddenness at the instant the needle enters or leaves the pleural space, although there may be a delay of 15 to 20 minutes or, rarely, an hour or so. There is sudden pallor, loss of consciousness, the pulse and respiration become irregular, and cyanosis rapidly ensues. The pupils dilate, clonic and tonic spasms of the limbs ensue, or these may appear only on the side punctured, or in isolated muscles. There may be a flaccid paralysis with irregular convulsions of the affected part. If recovery takes place, a later puncture may or may not be accompanied by like symptoms, but such is often

the case. Animal experimentation led Cordier to decide that pleural shock occurred largely through the mechanism of the vagus nerve, although he does not explain his reasoning very clearly. He found that mere mechanical irritation of the pleura does not cause the condition, but that certain chemical irritants do, especially tincture of iodine, alcohol, and carbolic and acetic acids. Also he noted that, if he ligated the carotids, shock did not follow unless he cut the ligatures, and then about two minutes later it came on with convulsions and subsequent death of the experimental animal. He found, moreover, that morphine administered beforehand and an anesthetic at the time were usually sufficient to prevent it.

Gas embolism is practically indistinguishable from pleural shock, for, generally speaking, the symptoms are the same. Riviere holds that the onset is less abrupt in embolism and that the patient often has time to complain of feeling ill before consciousness is lost. Brauer believes that immediate cessation of respiration and circulation denotes embolism. The appearance of symptoms at more than one filling is generally conceded by all observers to be pleural shock, and the demonstration of gas bubbles in the retinal vessels is accepted as conclusive proof of embolism. The introduction of gas into a vein of the greater circulation, as of the chest wall, would hardly give rise to grave symptoms since it would have to go through the pulmonic circulation before being carried to the brain. But when a pulmonic vein is entered, the gas enters the left heart and thence goes to the general circulation and becomes immediately dangerous. The gas entering the vein might come from the manometer tubing, or, when the lung has been wounded, from the alveolar air. The latter mechanism is vouched for by Brauer, Spengler and Saugman, who point out that the alveolar air is at a slightly positive pressure while the venous pressure is negative within the lung, especially during inspiration. This negative intravenous pressure is maintained by the suction power of the thorax and by that of the heart. Piper was able to demonstrate on dogs and cats that the intravenous negative pressure in the thorax was, on an average, 5 cm. of water greater than the intrathoracic negative pres-

sure taken on the same animals at the same time. Riviere estimates the difference in the human animal to be from 7 to 8 cm. of water. Forlanini found that he could inject as much as 8 c.c. of nitrogen into the left ventricle of a dog or 3 c.c. into the carotid artery without symptoms, but that more than this gave serious results. Saugman believes that at least 20 c.c. of gas would be necessary to produce a fatal embolism in man. Much would depend, of course, on the area of the brain involved.

Emphysema of the chest wall may appear when a needle of too large calibre has been used, when a very high pressure is maintained, or when much coughing follows the filling. It is readily made out by the characteristic crackling felt on palpation or heard through the stethoscope. When only the chest wall is involved, this complication is of minor importance, but with a mediastinal emphysema the symptoms may be alarming. They are: Sensation of soreness in the throat, tightness in the neck and chest, dyspnea, nasal quality to the voice, chest pain, and cyanosis. The characteristic crackle can be made out in the neck after the hair has escaped above the sternum. The mechanism of this form seems to be a wounding of the lung with the escape of gas underneath the visceral pleura beneath which it goes to the mediastinum *via* the hilum. Despite the alarming symptoms, no serious results have ever been reported from his mishap.

Perforation of the lung is the most serious accident which may happen to a pneumothorax patient, since it usually bespeaks a fatal termination within a year at most. It usually happens in cases with large cavities or large caseous areas, especially when these are closely subpleural, and the risk is believed to be greatest when the pressure has been allowed to fall too low before a refill is done. The symptoms are sudden, violent pain in the side, followed by a septic temperature curve and a rapid accumulation of fluid. If the perforation remains open, a loud, whistling sound may be made out with the stethoscope. A lowering of the intrathoracic pressure with the inability to raise it by the introduction of more gas is characteristic, unless the opening

is valvular, in which case there is a continuous increase in the pressure. Empyema is almost a constant sequel to rupture and usually is so septic as to be fatal. However, a few cases have recently become quiescent by recourse to thoracoplasty.

The commonest complication of lung collapse is pleurisy, which may be dry only, but is usually accompanied by an effusion. The percentage of cases in which fluid forms is variously estimated by different observers, but all agree that it is high and sooner or later it occurs in probably a majority of all cases of pneumothorax. Riviere puts the incidence at 50 per cent, Moorman at 60 per cent, and Watson, himself a victim, at 75 per cent. The character of the exudate varies from a clear, straw-colored fluid to a moderately thick pus. The purulent fluids are fairly rare. The symptoms are variable indeed, ranging from none to those of marked sepsis. Pain, while often present, is rarely severe, practically never approaching in intensity the

stitch of acute plastic pleurisy in the uncollapsed cases. Fever is fairly common and may precede the appearance of the fluid. There seems to be no definite relationship between the degree of the sepsis and cell count of the exudate, clear fluids often being very toxic and fairly purulent fluids practically symptom-free. The bacteriology of the effusion is almost always the tubercle bacillus, and when a secondary invader is present the outlook is grave. Mixed infections are usually noted in lung perforations; very rarely otherwise.

In evaluating a case as to the wisdom of initiating a collapse, stereoscopic plates are a *sine qua non*, and frequent platings are necessary to follow the degree of compression until the lung is well down. The fluoroscope is an invaluable aid and should always be used both before and after refills, for by constant checking with this instrument a better estimate of the work can be secured than by any other means.

RECENT VIEWS CONCERNING THE NASAL ACCESSORY SINUSES *

By WILLIAM MITHOEFER, M.D., F.A.C.S.
Cincinnati, Ohio

THE first requisite in the treatment of nasal accessory sinus inflammation is to carefully study each individual patient, and to attempt, by means of the various diagnostic methods at our command, to establish a definite working basis for the treatment of the case before us. This is not always an easy task, for it embraces very often not only a study of the nasal condition but also a careful analysis of the entire body as well. The time has arrived when we, as otolaryngologists, must recognize the important fact that the ear, nose and throat is only a part of a most wonderful and intricate machine, and that, although the patient before us may show some pathological change in the regions with which we are specially interested, there may be some changes in other parts of the body

which are far more important and should be treated in preference to the nose and throat condition. Especially is this true in chronic nasal sinus disease.

Scientifically, we may have been correct when we removed the hyperplastic changes from the ethmoid cells and lateral wall of the nose. The patient, however, is dissatisfied because he continues to suffer with the same headache he had when he first consulted us. He drifts from one doctor to another until, finally, he falls into the hands of an internist who makes a careful examination of the muscles of the neck and finds that the patient has a latent arthritis of the sterno-clavicular joint and cervical vertebræ. All muscles attached to a joint affected with a latent arthritis become hypertonic. As a result of this hypertonicity, the nerves which penetrate the muscle readily become affected and headache is the result. It is necessary for us, as

* Read before the Section on Eye, Ear, Nose and Throat of the West Virginia State Medical Association at Fairmont on May 23, 1928.

otolaryngologists, to carefully palpate the muscles of the neck in order to demonstrate the presence of painful spots along the course of the muscle, and to institute proper massage which very often gives relief in some of the most distressing cases. In applying massage to the muscles, we must remember that longitudinal massage along the course of the muscle is pain-relieving but not corrective, and that it is necessary to make transverse massage, and also to apply pressure in the region of the occipital nerve, at a point halfway between the external occipital protuberance and the mastoid tip. Pressure should also be applied in the region of the supra-orbital notch, for frontal headache is also a prominent symptom.

A blood Wassermann test is another important feature of our examination in all nasal sinus cases before operation. During the past few years we have seen thirty patients with nasal sinus disease who had a positive Wassermann. Most of these patients were referred to us for a nasal sinus operation. Anti-syphilitic treatment cleared up the sinus disease in most instances. In a few cases, where an operation was found necessary, it was not done until the blood Wassermann test was negative.

Many patients are constantly having a cold in the head. It matters not what we do for them; they continue with recurrent infections in the nasal sinuses. We may have gone so far as to radically deal with all of the nasal sinuses, but all of our efforts were of no avail; the patient continues having recurrent attacks of purulent nasal discharge. We have been led to believe that a general dyscrasia of some kind is at the bottom of this annoying complaint. It is very often difficult to ascertain the true nature of the systemic derangement. Of one thing we are certain, however, and that is the fact that many of these patients are overnourished, drink little water, are constipated, seldom take any exercise, and often show signs of a secondary anemia. It will require much observation on patients of this type before we will be able to definitely establish in our minds what sort of a systemic condition prevails. I believe that when we have solved this problem we will have taken a big step forward in the right direction. The

point I wish to emphasize is that local measures, although very carefully done, are often of no benefit unless a faulty systemic metabolism, whether in the intestinal tract, glands of internal secretion, *et cetera*, is corrected. This is one of the biggest problems facing otolaryngologists at the present time, and it will only be with the aid of a good internist that we will be able to get an insight into this difficult question.

So much for systemic causes of nasal accessory sinus inflammation. We will next divert our attention to the management of the paranasal sinuses from the viewpoint of the rhinologist.

I. ACUTE AND SUBACUTE CASES.

It is an interesting observation that the majority of so-called influenza cases are nothing more than a paranasal sinus disease. Headache associated with the acute cases is not, as a rule, the result of sinus inflammation. It is more often caused by the pressure of an edematous middle turbinate against the lateral wall of the nose. Relief may often be brought about by the infraction of the middle turbinate. The simplest way of doing this is to cocaineize the parts, insert a long-bladed Killian speculum between the turbinate and lateral wall of the nose, and gently spread the blades, thus fracturing the middle turbinate. We do not approve of removing a part or the whole of a middle turbinate, in the presence of an acute inflammation of the sinuses, without first making a bacteriological examination of the nose. In the presence of a streptococcus hemolyticus infection, all minor operative measures should be abstained from; if the symptoms become aggravated and surgery is found necessary, a radical procedure should be instituted. As a matter of fact, local treatment of the nasal mucosa during the active stage of inflammation rarely is of benefit and usually makes the patient more uncomfortable. The method which has given us the best results in the treatment of acute and subacute cases is to produce a hyperemia of the nasal mucosa by means of a Bier's hyperemia band about the neck and the application of light therapy by one of the numerous lamps used for this purpose. The hyperemia band consists of ordinary elastic, one inch wide, and is applied above the clavicle

and allowed to remain at least eighteen hours out of the twenty-four. It is removed for three hours in the morning and three hours in the afternoon. It must be applied in such a way that the patient experiences a sense of fullness in the head. High blood pressure is a contraindication to its use; so also is an acute otitis media or a peritonsillar inflammation.

Besides using the methods for the production of hyperemia, the patient sprays his nose with a one half of one per cent solution of cocaine, in two per cent boracic acid solution, and is given any of the various coal-tar products with the addition of codein phosphate, grain one half. Rest in bed for a few days is insisted upon, even in the absence of fever, but we have found very few patients who will comply with this request. Before dismissing a patient, who has had an acute paranasal sinus disease, from our care, we irrigate the antra, if the skiagram is opaque, in order to exclude the presence of an unrecognized antrum suppuration. The antrum irrigation is not to be done during the active stage of the disease, but is of great importance after the acute symptoms subside and suppuration persists. We rarely find it necessary to puncture the antrum in the inferior meatus, and prefer the region of the natural orifice for the point of entry.

Irrigations of Antra Through the Natural or Accessory Openings.—The simplicity of this procedure warrants its frequent use. The lateral wall of the nose is cocainized with a pledget of ten per cent cocaine, or, what is still better, with the application of cocaine mud. A Ritter's sound, No. 1, is next used as a guide in order to ascertain the size of the natural orifice or determine the presence of an accessory opening. A dull-pointed canula is next introduced into the opening and the antrum cavity irrigated. The unpleasant effects of fainting and profound syncope, which so often accompany puncture of an antrum in the inferior meatus, are not seen during the lavage through the natural orifice. There is also no danger of injury to the blood vessels and the production of an embolus on account of the use of a dull-pointed instrument. In all of the cases of death following irrigation of the antrum which have been reported in the literature, a sharp-pointed

instrument was used. Death was probably the result of an air embolus. We have used antrum lavage through the natural orifice many thousand times, and can heartily recommend it as one of the simplest and most conservative measures for both treatment and diagnosis.

A few words, now, concerning the rhinological examination:

Rhinological Diagnosis.—It is taken for granted that, in doubtful cases, a complete physical examination is made before an opinion is given concerning the rhinological aspect of the case. It is not always a simple matter in purulent conditions of the nasal sinuses to state definitely where the pus present in the nose originates. If we see pus between the middle turbinate and lateral wall of the nose, the definite thing to establish first is whether the antrum is diseased, and, if it is affected, is it primarily involved or is it only acting as a reservoir for the pus above? Our method of procedure in these cases is to irrigate the antrum and, if the irrigating fluid is cloudy, to pack the nose with a pledget of cotton in the region of the naso-frontal duct and anterior ethmoid cells immediately after the lavage. This is done in order to prevent drainage from above into the antrum. With the packing in the nose, have the patient return in four to six hours. If irrigation of the antrum at this time shows a clear fluid, we can be reasonably certain that the antrum is only acting as a reservoir for the pus from above and that it is not primarily affected. If the irrigating fluid is turbid, it is almost certain that the antrum is primarily affected. If the pledget of cotton shows the presence of pus, and the antrum fluid is also cloudy, we are probably dealing with a pansinusitis. If the antrum fluid is clear and the cotton saturated with pus, the cells of the ethmo-frontal region are affected. If there is no pus to be seen on the cotton and the antrum fluid shows pus, we are undoubtedly dealing with a primary antrum disease.

This is an important part of the rhinological examination, for our operative procedure is often dependent on this rhinological finding. The point to be emphasized in this connection is the fact that only with careful study of each individual case will we be able

to bring nasal accessory sinus surgery to the high standard which it deserves. We should always remember the maxim of Hajek—that it requires three weeks to make a diagnosis in a difficult case of nasal sinus disease and to outline the proper method of operative procedure.

An enlightening diagnostic method in hyperplastic cases is the infracture of the middle turbinate and the careful inspection of the floor of the ethmoid. If this is done as a routine, a diagnosis of hyperplastic ethmoiditis will often be made. It is not only the hyperplasia of the ethmoid floor which is readily seen, but the size of the bulla ethmoidalis and its relation to the uncinate process is also an interesting observation.

The skiagram must be considered only as an adjunct of secondary importance in making a diagnosis. The clinical findings should always occupy the place of prime importance. A cloudy skiagram should be looked upon with suspicion until checked up by clinical findings. A clear skiagram of the antrum, for instance, in the face of positive clinical findings, should be ignored and the antrum dealt with, according to our best judgment. In several cases of this type we have found, upon operation, that the lumen of the antrum was free from hyperplastic changes, and that the chief pathological changes had taken place in the various recesses of the cavity. We have termed this form of antrum disease "recess hyperplasia," and believe it to be an early stage of hyperplastic maxillary sinusitis.

The instillation of lipiodol into a suspected antrum very often gives us much information regarding the contents of this cavity. By the use of this method we have been able to make a diagnosis of latent antrum disease and to give the antrum the attention it deserves, at the time of the operation—in this way getting better results in most of our cases. Failure to recognize latent antrum disease at the time of an intranasal operation is, in our estimation, very often one of the chief causes of failure. It is our opinion that we should never proceed with a simple nasal operation without carefully studying the nasal accessory sinuses. Post-operative sepsis and maxillary sinusitis may in this way very often be prevented. The method of instilling the lipiodol is as follows:

After thorough cocainization of the lateral, middle meatal wall of the nose, a Ritter sound No. 1 is placed in the region of the normal orifice of the antrum in order to learn of the patency of this opening and also to ascertain the possible presence of an accessory ostium. If a normal or accessory opening is found, a Siebenman's canula is next introduced, if any opening is present. If no opening is present, firm pressure is made against the membrane with a Ritter sound and the wall punctured before inserting the canula. The cavity is next irrigated with a hypertonic salt solution and insufflated with air until the irrigating fluid ceases flowing from the nose. The lipiodol solution, mixed with equal parts of liquid albolene, is next slowly instilled into the antrum, with the patient's head reclining on the shoulder of the same side. The injection is continued until it is felt to be under pressure and there is an overflow from the nose. A large cotton tampon is next placed in the middle meatus with the head of the patient remaining in the side position. The skiagram is then taken.

We prefer instilling the lipiodol through the opening in the middle meatal wall, in view of the fact that through gravity we are better able to reach the alveolar and malar recesses with the injected fluid. The appearance of the skiagram after the lipiodol instillation, in the presence of a latent antrum disease, is variable. There is a bare possibility of the iodine oil filling the entire cavity if there happens to be present a thin, pyogenic membrane instead of an edematous or a hyperplastic one. In most instances, however, we have found the greater portion of the cavity filled with lipiodol, the parts unoccupied by the fluid corresponding to the regions of the alveolar, malar and prelacrimar recesses. At the time of the operation it was clearly demonstrated that the above-mentioned recesses contained edematous or hyperplastic mucous membrane.

I shall next consider the various paranasal sinus operations and describe a few of the technical points used by us in the performance of these operations at the present time.

The Ethmoid Operation.—In this operation, unless the middle turbinate has undergone severe hyperplastic changes, it is our aim to

preserve it. Whenever the middle turbinate is sacrificed there remains after operation a wide space and a loss of physiological function of a very important part of the nose—a part which has much to do with the proper preparation of the inspired air in its passage to the lung. Furthermore, the action of the glandular structure contained in the middle turbinate is lost, and, lastly, in the removal of the middle turbinate we divide the olfactory sheath and since there is a direct communication of the olfactory sheath with the arachnoid there is great danger of a secondary post-operative meningitis. In the performance of the operation, there is also less danger of injuring the cribriform plate with the middle turbinate intact. Whenever there is a slight deviation of the septum, a submucous resection is made as a preliminary step before beginning the ethmoid operation. This makes the middle meatus easier of access and allows better medial adjustment of the middle turbinate, owing to the loss of the septal wall. During the progress of the operation the long-bladed Killian speculum is frequently used in order to keep the turbinate in as far a medial position as possible. The ethmoid cells are removed with forceps and curette; the uncinate process is divided with a knife. An important point in the operation is to remove as much as possible from the lateral wall in order to prevent a future adhesion of the middle turbinate. The anterior ethmoid cells are carefully removed, after which it is usually easy to pass a Ritter's sound into the frontal sinus. If there is extensive involvement of laterally displaced ethmoid cells, or infundibular cells displaced upward into the frontal sinus, then it may become necessary at some future day to deal radically with the frontal sinus. In former years, after doing an ethmoid operation, we were astonished at the severe reaction which took place, and with the frequency of post-operative infection of the antrum. During the past four years we have included in the ethmoid operation the complete removal of the inferior hiatus cells and the opening of the maxillary sinus in the middle meatal wall. This is readily accomplished with a curved rasp and biting forceps, and prevents post-operative retention if there happens to be

present a latent antrum disease. The operation is always done under local anesthesia, and for two days following the operation the space between the middle turbinate and lateral wall is packed with gauze saturated with a one per cent white precipitate ointment.

The Antrum Operation.—We have long since given up the intranasal antrum operation under the inferior turbinate. We have found that if the suppuration does not cease after twelve to fifteen irrigations through the natural orifice, or after an intranasal opening has been made in the middle meatal wall, nothing short of a radical procedure will be of any use.

Our operation of choice is the Caldwell-Luc under local anesthesia with the formation of a nasal mucous membrane flap in the inferior meatus. We also deem it advisable in the performance of the radical maxillary sinus operation to remove the greater portion of the middle meatal wall, in order to reach the inferior hiatus cells and to do away with any hyperplasia which has affected the membranous wall in this region. Occasionally, when there is marked destruction of the middle meatal wall with marked pathological changes in this area, we modify the radical antrum operation and prefer the method of Gerber, which consists in not making an opening under the inferior turbinate, but to remove the entire middle meatal wall. Hurried operating is to be condemned. All recesses must be carefully inspected, and granulations and hyperplasia present in these regions removed, either with curettes or properly bent periosteal elevators. We prefer to remove the greater portion of the hyperplasia from the antrum cavity by dissecting it from its attachment to the bone with a periosteal elevator, in this way removing the hyperplasia *en masse*. The inferior turbinate is also preserved, if possible; but if there is an overhanging edge of the turbinate which shows hyperplastic changes, a portion of the overhang is removed. In some of our cases we have abstained from the use of iodoform packing, but have found that these cases very often have a post-operative saprophytic infection and that occasionally a blood clot forms in the antrum. We, therefore, prefer to pack the cavity for four days with iodo-

form gauze, believing in this way to prevent a secondary saprophytic infection.

The Sphenoid Operation.—Two important operative changes referable to this operation should be emphasized. In the first place, it is interesting to know that the sphenoid operation can be done without removing the middle turbinate. After finishing with the ethmoid operation, the middle turbinate is displaced to the lateral wall of the nose, and a good view of the ostium may be obtained. In order to prevent post-operative closure of the sphenoid opening, a cross-like incision, according to the method of Halle, is made into the mucous membrane overlying the ostium. The mucous membrane flaps are dissected upward and downward, and after the bone is removed they are placed in the cavity, thereby covering the bone and preventing future closure. We do not believe that true hyperplastic sphenoiditis is of frequent occurrence. A hyperplastic state of the anterior wall of the sphenoid may close the ostium, and secondarily, through circulatory changes, produce the various neuralgias and optic neuritis without affecting the interior of the cavity.

The Intranasal Frontal Operation.—In selected cases this operation, done according to the method of Halle, is a good procedure. When marked pathological changes have taken place in the laterally displaced ethmoid cells and frontal sinus—when we are suspicious of the presence of an infundibular cell extending upward into the frontal sinus—it is better surgery to proceed with the external frontal sinus operation rather than to attempt the intranasal method. The external frontal, however, should never be done until after the ethmoid cells have been thoroughly exenterated, the one exception to this rule being the presence of orbital and intracranial complications. If, after doing an intranasal ethmoid operation, we find but little pathology and are unable to enter the nasofrontal duct, the Halle operation often brings about the desired result by sufficiently widening the nasofrontal duct. The first step of the operation is to make a mucous membrane flap on the lateral nasal wall. Three incisions are made into the mucous membrane, after injecting the same with one per cent novocain-adrenalin solution. The first incision is made horizon-

tally, high up along the roof of the lateral wall, extending forward to a point opposite the anterior end of the inferior turbinate; a second vertical incision is made from the anterior portion of the first incision to the anterior end of the inferior turbinate; a third incision from the extreme upper end of the first incision to a point on the lateral wall opposite the middle turbinate. With a small periosteal elevator, the mucous membrane is elevated, beginning anteriorly, and the flap thus formed, displaced downward into the nose. The agger nasi cells and a part of the ascending process of the superior maxillary bone are then removed with a long chisel until a wide opening is made which leads into the nasofrontal duct. After the roughened edges of the bone are smoothed with a burr, the flap is placed in position and held there with a light packing of iodoform gauze. This operation is very satisfactory in many cases, but when much pathological change is present we prefer the external frontal sinus operation according to the method of Ritter.

The External Frontal Sinus Operation.—One of the greatest advances in doing this operation has been the employment of a local anesthetic instead of ether. We have abandoned the use of tincture of iodine on the skin and use, instead, a solution of 7½ per cent tannic acid in alcohol. The operation is done under local anesthesia, except in highly nervous individuals.

The following formula of 0.5 per cent novocain solution is used for infiltration anesthesia, a 2 per cent novocain, however, being injected for nerve blocking:

Novocain	0.5
Sol. Potassium Sulf. (2%)	20.0
Sol. Natrii Chloride (0.9%) ad.....	100.0

The injection is made along the supra-orbital ridge, the nasal bone, and along the frontal process of the maxilla to a point opposite the lower orbital ridge. A small portion of the skin overlying the frontal bone is also infiltrated; the anterior ethmoid nerve is injected by inserting the needle along the upper orbital wall, half-way between the supra-orbital notch and the inner canthus of the eye to the extent of about four centimeters. This injection should be made only if an external operation is being done; if the anterior ethmoid

nerve is blocked before doing intranasal operations, there is danger of a hematoma forming and causing pressure over the optic nerve. The nasal mucosa is well anesthetized and the lateral wall of the nose opposite the middle turbinate is injected with the novocain solution. The second branch of the fifth nerve is blocked by injecting 2 per cent novocain solution into the posterior palatine canal. A cotton tampon containing 10 per cent cocain is then placed on the floor of the ethmoid, and another high up between the middle turbinate and septum. The eyebrow is not shaved.

The skin incision begins a little to the medial side of the supra-orbital notch and extends downward to a point opposite the lower orbital ridge. The incision is not made in the eyebrow, but immediately below the same, and is carried well up on the nasal bone so that the future scar will have a bony support. After stopping all bleeding, the periosteum is divided and the soft orbital tissue carefully dissected, using, for this purpose, either a small periosteal elevator or, better still, a flat chisel. In several of our cases with severe headaches, and in which we surmised that there was present an anterior ethmoid neuralgia, we elevated the orbital tissue until a good view of the anterior ethmoid nerve was obtained. This nerve was then steadied with a hook and divided with scissors. There usually occurs a prolapse of a small part of the orbital fat after division of the nerve, and occasionally profuse bleeding.

The opening in the frontal sinus is made on the orbital floor by placing the chisel on the lateral side of the nasal process of the superior maxillary bone. The direction of the chisel is from above, downward toward the eye. After an opening of sufficient size is made in the frontal sinus, the cavity is packed with gauze saturated with 10 per cent cocain-adrenalin solution. The nasal process of the superior maxillary bone, as well as a part of the nasal bone and also the lacrimal bone, are now removed with the Hajek maxillary punch forceps, it being advisable to abstain from the use of the chisel because of the discomfort to the patient. Care must be taken to remove but little of the lamina papyracea, for we consider this wall important in order to prevent post-operative prolapse of soft tissues

of the orbit. If the frontal sinus extends laterally, it is far better to enlarge the opening on the floor of the orbit in order that all recesses of the frontal may be explored.

The ethmoid cells are next carefully removed with a biting forceps and a curette applied in a downward direction, preserving, if possible, the nasal mucous membrane. This is of importance if one wishes to use mucous membrane flaps. Inasmuch as the floor of the frontal is made up of the crista frontalis (a part of the internal angular process of the frontal bone), and the turbinate wall of the ethmoid, it becomes necessary, in order to secure a wide opening in this region, to remove as much of the crista frontalis as is possible. In removing the crista, however, we must be careful to chisel forward and laterally, not toward the midline, for fear of opening the cribriform plate. Another dangerous place to chisel is where the inter-frontal septum touches the posterior plate of the frontal bone, at which place the cribriform plate begins. After the ethmoid labyrinth has been thoroughly removed, and all small ethmoid cells lying posteriorly have had the necessary attention and the sphenoid cavity has been explored, our attention is again directed to the frontal sinus cavity. The inter-frontal septum is examined, and if it is deviated to the opposite side a careful examination of this region is made for the presence of a crista olfactorius, recessus crista galli, and recessus paracribrosa. If present, there must be little, if any, curetting done in this area, for fear of injuring the dura. Every vestige of diseased mucous membrane is removed from the remaining sinus cavity, using for this purpose curettes bent at various angles. A better view of the cavity of the frontal sinus is obtained if the ledge of bone projecting inward from the posterior surface of the supraorbital ridge is removed with a flat chisel. The skiagram should at this stage of the operation be viewed in order to determine the presence of intra-frontal septa which must be broken down. It is advisable not to curette the sinus cavity if the mucous membrane is but slightly thickened.

We always attempt to preserve the middle turbinate, although marked hyperplasia may occasionally require a removal of a part or

the whole. The preservation of the middle turbinate leaves a normally functioning nose and is a reliable guide during the operation, so that by remaining to its lateral wall we are able to prevent injuring the cribriform plate in this region. After the removal of the middle turbinate there may be an infection along the sheath of the cut or torn olfactory nerves which communicate with the arachnoid space and may be the cause of meningitis. The preservation of the turbinate also prevents crust formation after operation. If the nasal mucous membrane has remained intact, we are now ready to make the flap according to the method of Uffenorde. The membrane is divided by making an incision transversely from above downward, so that a large part of the flap occupies the lowermost portion of the opening, and the small upper part is placed upward into the frontal sinus. This upward nasal mucous membrane flap covers the region of the crista frontalis where post-operative osteitis usually develops and produces excessive granulations with secondary constriction of the duct. The flap from the nasal mucosa prevents granulations from forming at two important places where, by their presence, there may be a subsequent closure of the outlet. We believe that the Uffenorde flap is probably much better than the one which covers only the lowermost part of the duct. A well-placed flap above in the region of the thick bone of the crista frontalis will undoubtedly be the means of preventing a subsequent osteitis and the formation of excessive granulations.

Laval first suggested the mucous membrane transplants from the lip. We have used this method in some of our cases in conjunction with the nasal mucous membrane flaps, and believe that if this is done there is less likelihood of closure of the nasofrontal opening after the operation. The mucous membrane transplants are taken from the lower lip, after cocainization, with a small razor or, better still, a safety-razor blade held by a hemostat. The mucous membrane transplants are then placed on that part of the remaining bony edge of the wound which is not covered by the mucous membrane flaps. After this is done the wound is closed with silk sutures, no packing being used in the frontal sinus. The

outer dressing is removed at the end of 24 hours, after which time we abstain from covering the wound, except during the first week, when a protective dressing is applied at night.

Post-Operative Treatment.—We have made it a rule for some time, during the first week following a nasal sinus operation, to do little if any after-treatment. The patient is given a spray of one half of one per cent cocain, to be used at frequent intervals, and capsules containing five grains of phenacitin, seven grains of aspirin, and one half grain of codein, which are taken three times a day. At the end of a week the nose is thoroughly cocainized and the parts carefully inspected. If the operative field is interfered with before this time we are apt to disturb the healthy granulations which are forming. From now on, about every fourth day, the operative fields (and this applies chiefly to the ethmoid region) are touched with a 5 per cent and later a 10 per cent solution of nitrate of silver, which is followed by the application of sterile, normal salt solution. These applications of silver are made until the cavity has healed with a smooth scar.

When a radical antrum operation has been done, too frequent lavage of the cavity is not a good procedure. If an intranasal antrum operation has been done, the cavity is irrigated with hypertonic salt solution, followed by the instillation of 1 per cent mercuriochrome solution into the antrum.

We have never been impressed with the fact that beneficial results follow the use of autogenous vaccines before the operation, but firmly believe that vaccines occupy an important role in the treatment of patients after operation. We have never used stock vaccines, preferring always an autogenous variety. On the third or fourth day following the operation, if there is present any evidence of sepsis, the nose is irrigated with hypertonic salt solution, and tampons saturated with this solution are applied to the operative field. This is done on account of the favorable action of hypertonic salt solution on edematous tissues. At the same time, hyperemia of the part is induced by applying the Bier's elastic and making use of light therapy which will induce deep hyperemia.

One of the most distressing post-operative complications is the rhinitis sicca with crust formation. A most frequent cause is the presence of one or more accessory cavities which are still secreting pus. The frontal and maxillary sinuses are the cavities most frequently at fault. The removal of turbinate tissue and consequent widening of the nose may also cause crust formation, and, in some instances, a constitutional derangement may be the underlying factor.

I am more convinced every day that the proper treatment of nasal sinus diseases is one of the most difficult problems confronting the rhinologist, and that the only way in

which we will ever begin to have a vision of things is for all of us to bring our records together. This is one manner in which we will be able to formulate some definite working basis in each individual case and make our failures less frequent.

We have attempted in this paper to give you our personal experiences in the past fifteen years, and if some of the thoughts expressed will be acceptable to you and help to forge a new link in the chain of progress, then we will feel that the endeavor has not been in vain.

MYDRIATICS AND MYOTICS IN EYE GROUND EXAMINATIONS *

By WALTON S. SHEPHERD, M.D.
Charleston, West Virginia

THE eye ground is a miniature picture of the circulation of the entire physical economy. By seeing the picture you can foretell an approaching storm, and, by correcting the predisposing cause, frequently prolong vision as well as life. The late Dr. Haab of Switzerland said: "When you have found but one spot on the retina, you should have a complete urinalysis." I would stress the word *complete*, for we now know that the condition formerly known as albuminuric retinitis is not albuminuric at all, but nephritic. You may have the characteristic picture without albumin.

This form of retinitis is not an inflammation but a fatty degeneration. There is not one lymphocyte more than normal, which shows there is no inflammation. These white patches form a star because of the radial layer of Henle. This is the internuclear layer.

We see senile degeneration in people who go from one optician to another asking for "stronger glasses" until they get into the hands of an ophthalmologist who dilates the pupils and gives them the proper refraction and advice as to their limitations. Of course we must use discretion and tell them in such

a way that they will not become morbid, but convince them that by intelligent care they can prolong the use of their eyes.

When you have the pupils well dilated you can examine for incipient lens opacities, which usually begin at the periphery and are not seen without thorough dilatation. It is very important to know this condition early, for, by removing all focal infections, stopping the use of tobacco, alcohol, coffee, and, as far as possible, correcting faulty elimination and vicious habits, you will greatly prolong the life of the lens and the retina. A case in point:

Patient referred on account of poor vision. Examination showed a classic case of nephritic retinitis. The tonsils were full of pus. In spite of her age (sixty-four) I removed the tonsils, and after six years she is in fairly good health.

In dilating these presbyopes, I use five per cent euphthalmin followed by one half of one per cent eserine. My reason for using eserine is that Dr. Luther C. Peter of Philadelphia reports one case of glaucoma following the use of euphthalmin. Of course this might have been coincident, but I prefer to err on the side of safety.

* Read before the Section on Eye, Ear, Nose and Throat of the West Virginia State Medical Association at Fairmont on May 23, 1928.

In senile macula diseases the pathology is out of all proportion to the ophthalmoscopic appearance, so, unless you keep this in mind, you will be puzzled to know why the patient does not see better. Do not forget that, in all forms of pathology after the fifth year of life, age is a debit and never a credit—tuberculosis and diabetes being possibly two exceptions. Due to the fact that most of us have many cases from the coal fields it becomes necessary that we be able to differentiate retinitis due to trauma from other forms of pathology. Fuchs' spot or retinitis circinata is one of the possible conditions. It appears in old age, the cause not definitely known and no history of injury. Berlin's opacity is another; usually a white ring or yellowish-white semicircle around the macula. This is usually seen in young subjects. There is history of a blow and consequent dimming of vision, the latter returning to normal and the spot disappearing in a few days.

I had the privilege of observing one of these traumatic cases daily. First, there were to be seen hemorrhages, flame-shaped, along the superior and inferior temporal vessels nearest the macula region. In a few days the hemorrhage disappeared and a white ring appeared around the macula. Had I not seen this case in the early stages I would have thought it due to some other cause and not the injury for which he was claiming compensation. In a similar case that I did not see in the early stages, compensation was refused and a long trial, ending in the supreme court, was necessary before compensation was granted.

Examination showed total loss of vision in one eye and with a minus-twenty, vision 1/10, in the other. My first impression was that his poor vision was due to a high degree of myopia and that his injury had not contributed to it, and I so reported to the compensation department. In a few days affidavits were presented, showing that, previous to the injury, the man had been able to work without glasses. You all know, with a minus-twenty this man's far point without glasses is at two inches, so I had to call the department and reverse my decision.

"Diabetic retinitis usually begins at the

periphery" (deSchweinitz) and requires a widely dilated pupil for a thorough examination. Diabetic spots are never seen in the young subject, so we know when we see a diabetic spot we also have an associated arteriosclerosis, but we may have retinal spots due to arteriosclerosis without diabetes. With these two conditions in mind, we can segregate by urinalysis, blood-sugar test, etc.

Case requiring dilated pupil for diagnosis: Mr. G., age 57. Chief symptom, poor vision. Right eye, 1/30; left eye, 1/5, with a plus one and a half sphere. Vision in left eye was brought to 20/20; right could not be improved. With euphthalmin dilatation I found a small spot exactly in the macula region. Before coming to me he had consulted an optician and an ophthalmologist, but no mydriatic had been used. After an explanation he was sorry, but satisfied.

Another case in point: Mr. H., age 58; poor vision in right eye. History: While hammering on steel had sensation of a drop of water striking the cornea. Examination showed center of the cornea hazy, with a slight linear scar. I could not see into the eye ground on account of this haziness, so I gave him subconjunctival injections of Pragl's solution. The cornea cleared, but the patient could not see, so I dilated the pupil and found a hazy lens with a piece of steel in the perpendicular in the capsule. I removed the lens with the steel and the patient has a 20/20 vision.

You have all experienced the difficulty of examining an eye ground in a semi-conscious or unconscious patient. We see many of these now, due to automobile accidents. Choked disc comes on in from five to twenty-four hours after injury. Never do a spinal juncture on a patient with a choked disc, as you may jerk the medulla into the foramen and cause sudden death; do a decompression. In case of recent synechia that will not dilate with atropine instillations, inject adrenalin (standard solution) subconjunctivally, four drops. Follow this by instillations of eserine and hot fomentations and again, in two hours, by atropine. If you do not counteract the adrenalin you may produce glaucoma.

MY EXPERIENCE WITH THE ELECTRO-CARDIOGRAPH*

By LUTHER C. DAVIS, M.D.
Fairmont, West Virginia

IT IS never wise to open a paper with an apology or explanation, but I feel that such is rather necessary. In the present discussion I have endeavored to set forth my own impression of the cardiograph and its value to the general practitioner. It is not a paper written for the cardiologist or by a cardiologist. Just as one may wander from the beaten path in the woods and get lost, so am I going to wander from the path of the highly technical paper, exact, accurate, and flounder in the maze of experience and personal impression.

When I left school, in spite of the valiant efforts of my teachers the question of heart and heart disease was pretty hazy. I grouped these disorders under three heads: those in which the heart made a funny noise called a murmur, and these were either leaky-valved hearts or else had growths on the valves, or else the valves were diminished in size; those in which the heart beat in an irregular manner, and those in which the heart seemed weak. The last I called myocarditis. At this stage of the game I encountered my first cardiograph. I had a middle-aged negro in the ward. He had a water-hammer pulse and a four-plus Wassermann. I sent him down for a cardiograph. When it came back, I looked at it much as a Zulu would look at a dollar bill. I can still remember the report said something about T waves and the amount of digitalis the patient was receiving. I noted what the report said but paid no attention to the graph. That was something reserved for specialists.

When I was an interne, I heard my chief tell about passing an applicant for insurance after that applicant had been rejected by another physician. "He merely had a respiratory arrhythmia," he stated. I asked my chief how he knew this. "Where can I find out about such things?" I asked. "Buy a copy

of Lewis' *Clinical Disorders of the Heart Beat*," he answered. I did. I read it carefully and then felt like a youngster who has just received a new gun. I started out to find something on which to use my newly acquired knowledge. It wasn't exactly easy, but it gave me a new slant, or a new angle, on which to approach the question of the heart. The murmurs faded in importance while the question of the heart muscle increased in importance. There were some irregularities I found I could easily spot; some I could make a shrewd guess as to their nature, and some I gave up.

Then there were those cases of heart disorder in which the heart sounded all right. It was regular, yet there was something seriously wrong because the patients evinced all symptoms of advanced heart-failure, edema, dyspnea, etc. Sometimes these hearts would not even be rapid. So I felt that more yet was needed in my efforts to find out about such a busy and important machine as the heart. X-ray! Yes, of course. The X-ray makes a shadow outline of the pericardium, and by placing the patient at a definite distance and thus making a definite angle with the ray, the exact size of the pericardial sac can be taken. Any gross enlargement of the entire heart or, more roughly, the enlargement of any portion, can be estimated. Careful percussion would often tell as much as the ray, but it was more comfortable to be sure and have something more tangible than a sound.

In regard to the more important heart conditions—in regard to the muscle itself—I was still in the dark. Naturally, I turned to the electrocardiograph, then a ponderous yet delicate, intricate yet simple, machine—a child of the experimental physiologist. There were but few in the country at that time, but I was interested in the heart, and although I did not have access to one I began to study out what this machine might do to help me.

When a neurologist gets a patient with an obscure paralysis, by a careful examination

* Read before the West Virginia State Medical Association at Fairmont on May 23, 1928.

of the involved area and by a thorough knowledge of the anatomy of the central nervous system—that is, knowing the course of this and that fibre tract—and by an ingenious series of deductions, he can trace out, to a hair, the location of the involved area. He follows down the path of the nerve impulses and finds where they are blocked. Just as a nerve impulse travels over a definite path, so does an impulse travel over the heart in a definite path.

The normal heart contraction impulse originates at the pacemaker, passes over the auricles and enters the bundle of His. Then it divides into the right and left bundle branch and is carried to the respective ventricular muscle by means of fine arborizations of conductive tissue (Purkinje system). Now when anything happens to this pathway, the services of a neurologist are not necessary to locate the exact spot of the deviation from the normal. The electrocardiograph does this and more. It puts down in black and white a graph illustrating the pathway of the heart impulse. Any change or deviation of the impulse is at once apparent. Is it any wonder my attention was attracted and my enthusiasm aroused over this machine? How was such a machine possible? Simplicity itself. A contracting muscle gives rise to a difference of electrical potential between the ends of the muscle. This difference of potential may be measured by any instrument that is sufficiently sensitive for detecting electrical charges.

In practice, a recording galvanometer is used. Now, when a body is put at rest so as to rule out disturbances of other muscles, the variations of potential developed by each heart cycle can be recorded. When this is done, a graph is the result. Each part of this graph represents the passage of the heart impulse for contraction through a definite part of its journey. Consequently, any deviation from the normal path is recorded, even delay of the impulse is noted, because the passage of the impulse through any part of the pathway can be accurately timed.

So I came to feel that a complete cardiac study rests on, first, physical examination including history; second, roentgenographic

studies or measurements, and, last but not least, electrocardiographic studies.

Therefore it was not much wonder when I began the practice of medicine that I felt the need of a cardiograph, and I frequently referred patients to large hospitals for this work. All this time the technical difficulties of the machines precluded their use by any other than a specialist or institution. Recently, when the machines became more durable, I felt justified in adding one to my equipment, a step that many practitioners will make within the next decade.

What will the novice do with the instrument of the master? It is this question that is calling forth this paper. I could not now get along without my cardiograph, because I would hate to guess where I now can find out. Placed in the hands of the general man, the cardiograph will be a wonderful boon. It will save life, prolong life, and give comfort and satisfaction to the patient. It will unerringly make the diagnosis of any arrhythmia, giving comfort and reassurance to some and warning to others. It will tell of muscle degeneration because this usually does not occur without causing some change in the impulse path. It will tell when a heart is under digitalis and warn when tolerance has been exceeded. It will tell whether there is a preponderance or lack of balance (not hypertrophy) of one side of the heart over the other, and, last but not least, it warns of serious muscle disturbance through inversion of the T waves. Any one of these things makes the cardiograph worth while to us.

Does one use it much? Every day. The man with coronary sclerosis and angina shows inverted T-1, etc. The big-hearted patient with a failing heart muscle shows a bundle branch block. The old lady with the sclerotic arteries and the rheumatic heart, and who has taken digitalis off and on for forty years, has a hang-up in the bundle of His. The woman with the fibroid uterus has inverted T-1 and the advisability of operation is further questioned.

Can the general man interpret the records? Yes. I would far rather read a cardiograph than some X-ray plates; they are quite easy and constitute merely a simple graphic record, and in ten years the man who can't read one

will rank with the man who, today, can't take blood pressure. Are there not some records that are very difficult to decipher? Yes. I can not understand every cardiographic tracing any more than I can interpret everything I hear through the stethoscope, but that need not deter one from using the cardiograph. Such occasions are rare.

Does the cardiograph ever fail to make a diagnosis when there is something wrong with the heart? Yes. It will not tell of valvular trouble unless this is accompanied by muscular change, nor will it always yield evidence in angina. But, then, all cases of angina are not accompanied by muscle degeneration, but seem to be of the nature of a pernicious reflex. Furthermore, the cardiograph will not disclose a true alternating pulse.

Is it of value to the surgeon? Yes. By telling of the hearts of his aged patients, his goitre patients, his fibroid patients.

Of what value is it to the patient, when we can do so little in cardiac cases? It is our most valuable means of estimating prognosis and many heart cases that seem bad but are really not. It helps to classify our cases. It helps solve the eternal question of the cardiopath. How long will I live? And, then, it is of inestimable value in warning of toxic digitalis action.

Now I think you can see the reason for this paper. I want to call the attention of all of you to this most valuable machine that has come, is coming or is about to come into your professional life. The cardiograph is no longer a supernatural weapon of the super-specialist. It is here for the general practitioner. It is his newest instrument of precision, offering him the most aid in cardiac diagnosis, a new help in our every-day, eternal battle against human suffering.

Discussion

Dr. M. C. BORMAN (Montgomery): Mr. President, I want to thank Dr. Davis for the opportunity of hearing his paper, and I also want to congratulate him. There are very few general practitioners who are using the electrocardiograph. Secondly, I want to thank Dr. Davis for his brevity, and, thirdly, for his interesting way of presenting what would

ordinarily be considered a technical subject.

I should like to caution against the too indiscriminate and injudicious use of this particularly inasmuch as many commercial firms are attempting to put on the market inferior instruments which are portable and can be generally used. At the same time, I believe we should become more familiar with the electrocardiograph as well as the individual tracings, because of the interest which it will arouse in us individually and because of the benefit which the patient will secure.

We should be cautious for another reason. It is not definitely known just exactly what the electrocardiogram represents. We have been taught in the past that the electrocardiogram is really the result of changes in electrical potential in the heart muscle incident to the passage of the impulse. More recently we have come to believe that these changes in electrical potential in the cardiac muscle are due to contraction and relaxation, and possibly also to conduction. So there are several factors that are involved, and until we know definitely what the electrocardiogram represents we should be very cautious in its use, and especially in the interpretation of tracings.

During the past seven years I have been carrying on experiments at the University of Wisconsin and the University of Pennsylvania laboratories with this instrument, in which I have tried to produce destruction of the sinoauricular nodes, where impulse normally originates, by the use of surgical excision, ligation, and more recently with radon, also known as radium emanation.

In these experiments I have found that, although you could produce complete reduction of the sinoauricular node, as evidenced grossly and microscopically, your electrocardiogram in your dog would be perfectly normal at the end of a long-time experiment, say, eight months after the operation.

In view of the fact that we believe the impulse normally originates in the sinoauricular node, I want to just call attention to that fact: that we have a normal tracing after destruction of this tissue where the impulse normally originates.

We have gone further. At the end of these long-time experiments we have used the initial negativity method of Lewis in deter-

mining where the impulse originates, by opening the chest of the dog, and the pericardial sac, exposing the heart, and determining in that way where the impulse originates.

I have found in these animals that, where there has been complete destruction of the sinoauricular nodes, the tissues originate in the tissue around the coronary sinus, which is the large sinus carrying the return venous blood supply into the right auricle. This tissue is considerably removed from the sinoauricular node, possibly an inch, and in view of the fact that we believe a different tracing will be produced in an animal where the impulse originates at the head of the node from what will be produced in an animal where the impulse originates at the tail of the node, a difference possibly of only a centimeter, or at the most 15 millimeters, we have reason to believe that there is something that we do not know.

I therefore want to caution against an indiscriminate use of an instrument the exact interpretation of which is still questionable.

Dr. W. C. SWANN (Huntington): Mr. President, I am very much interested in this paper. I certainly did enjoy it. It was put forth in a manner that was easily understood.

The doctor says he can't get along without his electrocardiograph. I feel the same way. Since I have had one, it has been of especial interest to me. I know more about the heart now than I did before I bought one, because it not only takes you into the study of the records but into other things of importance.

As the doctor says, I believe there is going to be more and more about this in the literature. We are going to have to understand it, because when we read a case report they will have the electrocardiograph reading, and we will want to understand that, just like we do a blood count, or have in the past.

Just a few years ago there were no machines in West Virginia and very few in the United States. In the last two years, at least three or four have come into West Virginia, and it has been the same in all the rest of the states. Just think what it is going to mean when all these men turn out electrocardiograms and study their cases in that way. In the past it has been done only by the ultra-

specialist. It will mean that we will all have to understand the electrocardiograph better.

At a meeting that I was giving a talk before, a question was raised about the P-Q-R-S-T waves. That sounds confusing to the average man. I should just like to explain that these P-Q-R-S-T waves were so labeled by Inthofen, simply taking the letters *P*, *Q*, *R*, *S*, and *T* from the alphabet. He might just as well have called them *A*, *B*, *C*, *D*, because those letters don't mean anything. Those letters, *P*, *Q*, *R*, *S*, *T*, have no special meaning.

The new equipment that is on the market now is the reason for there being so many machines purchased. A few years ago they had to be located on a solid, concrete foundation, and they couldn't be moved about. One company now has an equipment which has an accuracy equal to that of these larger machines, which can be carried about and used any place.

With regard to the interpretation of these cardiograms, as Dr. Borman said, we know certain things or are supposed to know certain things in this record mean certain conditions in the heart. His caution as to the readings of these, I believe, is timely; but I think the men who have electrocardiographs should use them more and more, and the other men in the state should do the same. The more records we have, the sooner we are going to arrive at definite conclusions as to what these things really mean—what these records really mean. My experience with it so far has shown me that there are certain things that we know pretty well now, and even with those few things that we really know it makes it very much worth while.

Dr. ELLIOTT P. JOSLIN (Boston, Mass.): I don't know anything about the electrocardiograph, but I do know this: that we have put through arrangements at the hospital with which I am connected so that our patients, by paying five dollars when they enter, can get all the basal metabolisms, electrocardiograms, pathological and chemical laboratory work *gratis*, and we put in the electrocardiograph especially because we felt that we all ought to become more and more familiar with it, and that if we could secure the tracings without cost we would be led to make many of them.

Dr. LUTHER C. DAVIS (*closing the discussion*): I was very much interested in what Dr. Borman had to say. I think his attitude is that of the experimental physiologist.

In the field of medicine, how many things are accurate? How much do we know? If we are pinned down to an answer, how many things can we state with mathematical accuracy?

I think that warning is always in order. It is a brake. Without these warnings we go down the hill too fast.

It is the tendency of the man who is doing experimental work to consider that work not finished. He will carry his battle against

unknown factors farther and farther. It is through the work of such men as Dr. Borman that we really know and have these things, and I feel that we who are doing the work in clinical medicine should avail ourselves of all the knowledge that we can, and, as we know more about these things, that we should apply that knowledge.

I think that Dr. Swann is in a position pretty much like my own. We keep our eyes and ears open and gobble up such morsels as drop from the table of these research men and try to apply them to every-day life, and we are very happy that these men are carrying on the work, and we are going to use what they give us to use.

SOME THOUGHTS ON DIARRHEAL CONDITIONS IN THE CHILD *

By KYLE M. JARRELL, M.D.
Beckley, West Virginia

DIARRHEAL conditions in the child cover a broad field, when studied from every angle. It is my intention to speak briefly, yet touch on some of the most important points of this condition so often seen, particularly in the industrial sections.

It seems to me that too little attention is given to this alarming condition, so often passed by with little comment, because, being a child, we don't count the cost in its proper sense. We must remember that the child of today is the adult of tomorrow, and death means an actual loss to every community even though it may be a child. It seems to me, then, a matter of important duty that the lives of these little ones should be safeguarded in every way possible.

The question might be asked, "How may we better perform this duty?" This is a big subject within itself—one requiring much thought—and can not be answered in this paper. But one of the most important things is the education of the public along the lines of hygiene and sanitation, and proper instruction of the mother, when possible, in the

proper methods of rearing her baby—the future citizen of the community. I often feel that the physician is too timid, fearing the criticism of other physicians who might accuse him of trying to advertise himself, to broadcast the dangers which confront us and help to educate the public in the right way.

Clinics conducted by the physicians in the community often bring home to the parents in a forcible way many truths, and proper instruction, when heeded by the parent, will tend to make many more happy homes, and the physician will have done a lasting good in his community.

The great majority of citizens want and, when possible, try, to follow good advice when given in the right spirit.

There are several important underlying factors upon which diarrheal diseases depend. We see the greatest frequency in the first year of life, with a gradual diminution after the second year. While diarrheal diseases are met with in all seasons, they increase with the advent of hot weather. How atmospheric heat acts in causing diarrheal disease is not yet established; yet it is a fact that increased heat plays a part in this condition. It was the

* Read before the Fayette County Medical Society on May 10, 1927.

long-prevailing opinion that it was the effect of heat upon the infant's food (especially that which was contaminated) that was the chief cause of diarrhea in the summer, and we know that, by proper care and inspection of milk, the mortality has been considerably lowered. Yet, with all the attention given to the child's food, the mortality remains high, in spite of all that has been done along this line.

It has been thought, from the more recent study of the question, that heat itself has a direct influence on the infant, particularly stagnant heat, intensified by want of ventilation and unhygienic surroundings. Heat under these conditions acts as a great depressant, disturbing metabolism, causing indigestion and, ultimately, diarrhea.

In my opinion, from my own observations, artificial feeding is a factor of first importance in the cause of diarrhea. It will be noted that less than five per cent of the cases of diarrhea are in breast-fed babies, and fatal cases are very rare.

It is borne out by statistics that the very ignorant may be successful in feeding the baby at the breast, where it takes considerable experience to properly prepare the food for artificial feedings, and here the ignorant mother generally will "fall down."

We see, in industrial districts, that artificial feeding is poorly done, and certain food mixtures are made up under poor hygienic conditions and with no known food value, and as an end result the infant falls into a condition of malnutrition, marasmus, loss of vitality, and is an easy prey for diarrheal diseases.

It so often happens that the mother decides to wean her baby at the suggestion of some neighbor, and feeds it at the suggestion of the neighbor, instead of asking for advice about weaning and feeding from her physician; and here the proper education of the public will go a long way toward solving our problems along this line.

We so often find that the simplest rules of hygiene are either unknown or ignored, and the importance of fresh air, cleanliness and regularity of feedings is unknown.

The use of impure milk is so important that groups of cases have been traced to a certain

milk supply. When contamination of milk began to be appreciated, it was thought that the real cause of diarrhea had been discovered and, with the furnishing of the infant with pure, pasteurized or sterilized milk, the problem would be solved. While the mortality has been greatly lowered by the use of better milk under hygienic surroundings, yet the mortality is still alarming.

In a series of 592 cases studied by the New York health department, with 202 cases observed in winter, there was a mortality of 2.5 per cent against 390 cases studied during the summer with a mortality of 10.1 per cent, the babies being fed on the same kinds and grades of milk, thereby showing that hot weather plays a considerable part in these conditions.

The worst results were found in those cases where a cheap grade of store milk or condensed milk was given.

In a series of 92 cases, taking a good milk prepared at a milk station and properly kept, the following results were shown: 41 of these infants were given pasteurized milk, with 31 remaining well, 10 developing severe diarrhea with an average duration of four days and with one death; while, on the other hand, 11 babies were fed raw milk, with 17 remaining well, 34 developing a severe diarrhea with an average duration of 11½ days, and two deaths. It became necessary to change 13 of the 51 babies to pasteurized milk before the season was over, due to the severity of the diarrhea.

These observations were carried on for two successive years, with the same results, which proves that pasteurized milk is much safer for the artificially fed infant.

Closely allied to summer diarrhea we see another form which is more severe in its onset and is called acute diarrhea. Acute diarrhea may, for the sake of convenience, be divided into mild, medium, and severe types, and closely allied to the severe type we have one which has a distinction of its own and is known as cholera infantum.

Acute diarrhea is characterized by a sudden onset, and the mild form may or may not have temperature. Some of these cases may have a mild beginning and develop a severe form, resulting in death within a few hours.

The causes are commonly those of summer diarrhea, or improper food and overfeeding. Some cases may be attributed to acute milk poisoning, especially the more severe type. In the mild cases we do not have any anatomical changes, but in the fatal form we have a superficial inflammation affecting the gastroenteric tract with varying severity. The greater part of the intestines and colon are distended with gas, and we also find, in some cases, an acute inflammation of the kidney, enlarged fatty liver, and other minor changes showing the severity of the infection.

In the severe type the symptoms come on suddenly, with vomiting, purging, frequent stools, colicky pains, tympanites, prostration, and general nervous disturbance. The temperature rises rapidly to 102-104 degrees Fahrenheit, and all the symptoms point to a severe illness. The child may lie in a stupor, or may be restless. Sometimes the diarrhea may be delayed several hours after the acute attack. The stools generally continue frequently until death, or gradually clear up if the patient has a tendency toward recovery.

Closely allied to the severe type we have another type called cholera infantum, and it is often very hard to detect the clinical differences. It rarely occurs in a child previously healthy. Sick for several days, but scarcely ill enough to call a doctor, the child may rapidly grow worse and be at death's door in five or six hours.

The general symptoms are similar to the severe type—prostration, steadily rising temperature, vomiting, and purging. The vomiting is frequent, and at first contains food that may be in the stomach; then serum, mucus, and sometimes some of the contents of the intestines.

The stools are frequent, large, and watery; first green in color, and changing to a serous evacuation; first acid, later neutral, and, when serous, alkaline in reaction. Loss of weight is very rapid, due to rapid draining of water from the tissues; the eyes are sunken and the face has a pinched expression. Temperature may run from 102 to 104 and 105 degrees Fahrenheit, and in fatal cases even to 106 or 108 degrees. Such a temperature may occur with a cold, clammy skin, rapid and weak pulse, and, if the end is near, pulse

can not be detected. Vomiting may continue to the end or may cease entirely a few hours before death. The leukocyte count may run 20,000 to 30,000. One generally finds an acidosis in these cases, and frequently the respiration is involved with marked dyspnea.

Finkelstein says that the condition above described is the result of the presence of products of intermediary metabolism, imperfectly elaborated, and directly poisonous.

Recent studies have shown that, in these cases, there is an acidosis and the disturbances of respiration are due to this, and the gravity of the symptoms is dependent upon the acidosis engrafted on a disease already serious. It has further been shown that there is a low carbon-dioxide tension in the alveolar air, and the greater the hypernea the lower the carbon-dioxide tension. Then there is an increase of concentration of the blood serum, and a greater diminution of the alkaline reserve of the blood, and an increase in quantity of alkali can be taken.

Sodium bicarbonate, given in sufficient quantity, causes cessation of the hypernea and return of the alkalinity of the blood to normal, hence a definite indication for treatment; but relief of the acidosis does not always cure the diarrhea.

In making a diagnosis, it is not wise to be too quick in expressing your opinion, even though you have made up your mind as to the condition with which you are dealing. The main thing, in making your diagnosis, is the history of the case, symptoms, and close observation of your patient when called in.

Be guarded in your prognosis, for very often a mild case may quickly take on the severe form and your patient may be at death's door in a few hours. The mild form does not often prove fatal, and should clear up in a few days under proper treatment. The moderate types generally go on to recovery, if taken care of in time. The severe type is always serious, and true cholera infantum is nearly always fatal.

The treatment depends solely upon the type with which you are dealing. Prophylaxis is the most important thing to consider first, and the following measures should be adopted:

- (1) Encourage maternal nursing.
- (2) Educate the mother in all matters re-

lating to the care and hygiene of the infant.

(3) Adequate supervision of the milk supply.

(4) Instruct mothers in matters of artificial feeding.

(5) Constant supervision of the artificially fed infant.

(6) Sanitary surroundings with proper ventilation in the homes.

Remember that feeding in hot weather should be carefully guarded, and better always to underfeed than to overfeed.

Give the child plenty of sterile water, and keep it cool and comfortable. In the cities, get the child out into the country in hot weather, when possible. It is a safe rule to boil the milk two or three minutes, and instruct the mother in the care of the bottles. The clothing should be loose and comfortable, and cotton or cotton-and-wool mixtures are preferable to wool in hot weather.

Dietetic Treatment.—Remember that, during the early stages of acute diarrhea, digestion is arrested, and to give food during this time is injurious; but you may give freely of boiled water or the cereal waters. In nursing infants, severe forms of the disease are rare; but if the child is nauseated and vomits, withhold the breast for 24 hours and give sterile water. In artificially fed infants, all food, and particularly milk, should be stopped at once. Sweet milk should be withheld during the acute attack and several days thereafter, but you may substitute chicken broth, rice, barley or albumin water, etc. Remember that fat and sugar are badly borne. The fatty acids in the milk give the chief trouble. Buttermilk or protein milk may be used to advantage in convalescence. No sugar should be given until the stools become more or less normal, and then cautiously, in the form of maltose. The same general principles apply to feeding older children.

General Treatment.—It must be remembered that you are dealing with a condition where there is indigestion, dehydration, intoxication, and later, perhaps, an inflammation of the gastrointestinal tract, due to the food being changed into toxic substances and changed by chemical and bacterial action.

In your treatment, take a lesson from nature: Empty the stomach, cleanse the intestinal tract by frequent irrigations, and

supply the water loss as fast as possible. If the child is old enough, draughts of water, which will be vomited later, help to wash the stomach. If there is fever, intestinal distension and foul stools, cathartics are indicated. I prefer calomel followed by oil, while others prefer oil and salines.

In the early onset an irrigation, two or three times daily, of normal saline solution or sodium bicarbonate (one drachm to the pint of water) will be found beneficial, as it acts to cleanse and free the intestinal tract of poison. After the intestinal tract has been thoroughly cleaned, I frequently give a mixture containing bismuth subnitrate, tincture opii camphorated, in a vehicle of elixir lactate pepsin, as might be indicated.

In the cholera infantum type, you may have to resort to hypodermic administration of morpine in dose of 1/60 grain to a child six months old. If it can be retained you may give tincture opii camphorated, or deodorized tincture opium, should it be required, for pain and to check the too frequent evacuations from the bowel. Stimulants may be required, and in extreme prostration hot packs may be beneficial.

When acidosis is present sodium bicarbonate should be given by mouth, subcutaneously or intravenously, and enough should be given to render the urine alkaline and keep it so. In the normal infant 15 grains will render the urine alkaline, but in acidosis it may take six or eight times this much to give a like result. If given intravenously, give 25 to 50 c.c. of a four per cent solution at a time, or, if the vein is hard to find, give it subcutaneously. It is always a safe measure to give sodium bicarbonate in any case with a suspicion of acidosis.

In all severe cases of diarrhea or of cholera infantum there is a great drain of water from the system and the tissues. Restore this by forcing water by mouth, and, if not retained, small quantities may be administered by rectum. The other methods of introducing fluids into the body are by hypodermoclysis and intraperitoneal injections. The former is the safer method, but the latter is the easier and quicker.

I have often seen wonderful results by intraperitoneal injection of eight to sixteen

ounces of normal saline, and I attribute saving the lives of several children to this radical measure. Of course, the solution and the apparatus must be sterile and the field cleansed with iodine and alcohol—taking the same precautions that you would take for a surgical operation.

It is important to remember that every case must be treated on its own merits, as no set rule and no specific line of treatment will apply to all cases; but you must be the sole judge in the case, as the child's life is in your hands.

I have not gone into the details of treatment of this condition, and have only tried to touch on some of the most important points to be remembered.

ABSTRACTS

Heart Strain

"Heart Strain in Its Industrial Aspects," by M. H. Kahn and Samuel Kahn; *American Heart Journal*, June, 1928.

While it has been recognized for some time by certain observers that one excessive individual muscular effort may produce permanent organic injury of heart or aorta, this fact has not been commonly recognized by the profession at large. A recent report by Kahn and Kahn in the *American Heart Journal* details a group of cases of men accustomed to laborious work, each of whom sustained such prolonged or permanent injury, following the strain produced by a single extreme exertion. Nearly all of them experienced this damage while lifting an excessive weight. The attending symptoms were severe pain in region of the heart or behind the sternum, marked weakness or immediate unconsciousness, incapacitating dyspnea and cardiac palpitation. Some cases have been reported where death followed immediately after such an exertion.

While this condition of heart strain is believed in some cases to have arisen in hearts in normal condition so far as could be ascertained, probably in most cases there was

previously some organic lesion unknown or unrecognized. Physical signs discovered after the injury have been variously reported. A small, feeble and rapid pulse have generally been observed, frequently irregularity with extrasystoles, sometimes paroxysmal tachycardia or auricular fibrillation. There may be other states of arrhythmia and commonly elevated blood pressure. A most striking feature in these cases is the disability of a previously supposed able-bodied man. A period of one year of total disability may be anticipated, during which the patient must rest completely, followed by another year of partial disability, when he can do only light work. In more severe cases the disability may be total and permanent in spite of the customary treatment of cardiac stimulation and other accepted procedures. The relation of heart strain to industrial compensation claims has called especial attention to this condition. Competent observers recognize that this may be a legitimate cause for compensation, and must be kept in mind by those engaged in industrial practice.—*Northwest Medicine*.

Varicose Veins

The injection treatment for the obliteration of varicose veins is attracting increasing attention. The French school, under the leadership of Sicard, has been using sodium salicylate in solutions of from 20 to 40 per cent. Linser used 20 per cent sodium chloride solution and reported 6,000 injections. Noble, in Germany, has made injections in 3,000 patients with 50 per cent dextrose. Meisen uses equal parts of 25 per cent solution of sodium salicylate and 10 per cent sodium chloride. In this country, McPheeters has reported favorable results with sodium salicylate. The most important consideration in connection with the injection method is the danger of pulmonary embolism. Thus far, reports of four cases of fatal pulmonary embolism seem to be available. Of these, two occurred after correct technique and therefore appear unavoidable. Against these two fatalities there are reports of 14,000 successful injections. The efficacy of the method will depend much on the proper selection of cases. Definite contraindications to the injection

method include cardiac and renal disease, accompanied by venous stasis and dilatation of veins, hypertonus, changes in and obliteration of the deeper veins, pregnancy, and large intrapelvic tumors. (*Jour. A. M. A.*, August 4, 1928, p. 322.)

Remarks on Stethoscopy

Bing emphasizes the fact that when pneumonia is complicated by pleuritis the diseased side arches somewhat outward and the intercostal furrow is eliminated. As the pleuritis is absorbed the side falls in.

By marking the boundary of the heart—that is, the total heart dullness—by percussion, you may be able day by day to follow how, under correct treatment, a dilatation to the right shrinks to normal, that is, reaches a little outside the right edge of the sternum.

In all cases where there are not very marked changes in the lungs, the patient should be examined in the sitting posture.

Bing emphasizes the fact that even by fairly slight percussion the whole lung may be set in motion.

The percussion beat is spread especially in the direction in which one makes the percussion. The recognition of this principle is of special value when using slight percussion.

The strength of the percussion beat is also of importance. By quite slight percussion only those waves lying nearest the direction wave are perceived, while the waves radiating out to the other sides and not hitting the heart do not reach at all to the perception. The direction wave is dulled by striking the heart. The pressure of the plessimeter finger is also of importance.

Supposing that the integuments covering the lung gradually become thicker to the right, one will at slight percussion in this direction by and by get a more dull sound, because the force of the beat will to a greater and greater degree be swallowed up by the integuments.

The author describes the situation of the lungs relative to the surface. The plessimeter finger must be placed in as exact a position

as possible, by placing the pulp of the hyperextended third finger in the place that is to be examined, and then striking on the basal part of the third phalanx.

It is important always to hit the same place on the finger.

Generally, a dullness due to swelling of a bronchial gland can only be pointed out on the right side where the bronchial glands are found in greater numbers and where they lie higher up than on the left side. If one fixes Kronig's borders and makes use of the breadth of the isthmus as a means of estimating whether there is infiltration of the apex, one may be led to a wrong result.—*International Clinics*, December, 1927.

Progress in Trachoma

The U. S. Public Health Service since 1912 has been studying and combating the scourge of trachoma which is prevalent in certain states, particularly areas in Kentucky, Tennessee, Missouri, and Arkansas. Clinics and small hospitals have been established where persons suffering from this disease may receive skilled treatment. In addition to the treatment of cases, considerable study has been conducted directed toward an investigation of the cause of this condition.

In a recently published article it has been stated that progress is being made in the study of the bacteriological factors which appear to enter into the cause of this disease. Scientific opinion varies somewhat as to the real cause of trachoma. Some authorities claim that it is due to bacteria. By some it is stated that diet or perhaps other factors influence its cause and spread. Recent studies by the Public Health Service seem to indicate that in all probability certain organisms or "bodies" which have been known for some time, are bacterial in character and they, no doubt, originate from bacteria. The fact of their presence in a considerable percentage of trachoma cases is an indication that they may be of some significance in the causation of the disease, but the question can not be answered definitely as yet.

TUBERCULOSIS ABSTRACTS

(Copy furnished by the West Virginia Tuberculosis and Health Association)

TREATING a case of tuberculosis requires science and art. The tuberculosis patient is sick physically and psychically. "Treat the patient—not only the disease" is more than an empty play on words. In no disease is recovery more dependent on the intelligence and cooperation of the patient than in tuberculosis. Expert management of the pathological condition is not enough; the patient must also be taught and trained and encouraged to adjust himself to his handicap. Unless doctor and patient are sympathetically in accord, this can not be achieved.

Sir William Osler Said:

"There is no greater mistake than to keep from the patient the knowledge that he has tuberculosis in its early stages, as it is only by having that knowledge that he can be expected to recover. We are criminal participants if we refuse to tell the patient exactly the nature of the trouble."

Safety in Knowledge

Patients may recover without even knowing they are tuberculous; but it is far better that a tuberculous person study the disease in order that he may recover more rapidly and that he may avoid a future breakdown. Knowledge of the disease gives one a feeling of safety, and safety means happiness. A person who has been tuberculous and is well informed on the subject is not often worried about his future. He knows how to avoid trouble, he feels safe, and, as a consequence, is more likely to live a normal and happy life. Patients, taking a rest cure, should learn tuberculosis—learn it well! Traveling about in the dark is an unsafe way to get through life.

Persons with supposedly imaginary trou-

bles are commonly advised to "forget it." Such advice is dangerous. The great evil resulting from the indiscriminate use of the expression, "forget it," is that the patient often has at the time not only a serious but actually a fatal disease that the doctor has not discovered.

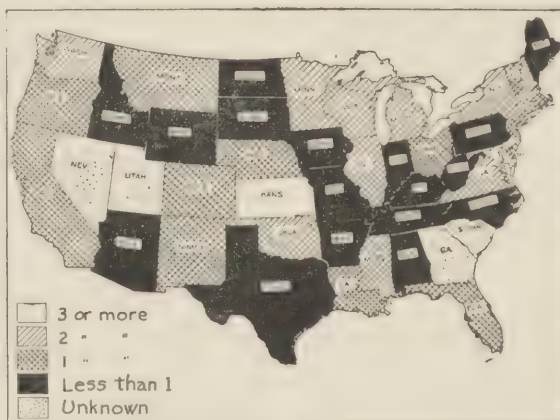
After a tuberculous patient has taken a rest cure and has gone back to work, his mind begins to build up a barrier to exclude the disagreeable parts of his recent experience.

This is normal. Only morbid minds and chronic sympathy-seekers continue to dwell on hardships, past or present. The healthy mind forgets disagreeable experiences. For this reason, persons that have been tuberculous often willfully deny the fact after recovery from the disease. It is commendable self-deception. But they do fol-

low the straight and narrow path, and, should evidence of what they think may be active disease reappear in them, they go at once to their medical attendant for reexamination. —*Getting Well and Keeping Well*, John Potts.

Prompt Reporting Necessary

Nearly 12% of tuberculosis cases reported by physicians to the Board of Health of Boston were reported after death. Another 12% were reported only one week before death. Of the cases reported during November, 1927, one-half had been reported within a month of death. "There is only one conclusion to be drawn from these figures, and that is that there is a serious delay in reporting cases of this disease.—Editorial, *Boston Med. and Surg. Journal*, February 9, 1928.



Ratio of cases of tuberculosis reported to deaths from tuberculosis, according to states. Compiled by Dr. Robt. E. Plunkett, N. Y. Department of Health.

THE WEST VIRGINIA MEDICAL JOURNAL

JAMES R. BLOSS, *Editor-in-Chief* - - - - - Huntington

...ASSOCIATE EDITORS...

J. HOWARD ANDERSON
Marytown

WALTER E. VEST
Huntington

C. A. RAY
Charleston

HARRY M. HALL
Wheeling

THE JOURNAL issued on the first of each month. Entered as second-class matter January 1, 1926. Acceptance for mailing at special rate of postage provided for in Section 1103, Act of October 3, 1917. Authorized July 24, 1919.

Subscription to Members.....	\$2.00 Per Year
Subscription to Non-Members.....	\$3.50 Per Year
Single Copies.....	50 Cents

OFFICERS

President:
C. A. RAY.....Charleston

First Vice-President:
D. G. PRESTON.....Lewisburg

Second Vice-President:
E. L. ARMBRECHT.....Wheeling

Third Vice-President:
W. C. SWANN.....Huntington

Executive Secretary:
MR. JOE W. SAVAGE.....Charleston

Treasurer:
T. MAXFIELD BARBER.....Charleston

Delegates to A. M. A.:
JAMES R. BLOSS (1927).....Huntington
HENRI P. LINSZ (1927-28).....Wheeling

Alternates:
A. A. SHAWKEY (1927).....Charleston
HARRY M. HALL (1927-28).....Wheeling

COUNCILLORS

Chairman of the Council for 1928:
R. H. DUNN.....South Charleston

First District:
H. R. JOHNSON (1-year term).....Fairmont
C. G. MORGAN (2-year term).....Moundsville

Second District:
C. H. MAXWELL (1-year term).....Morgantown
C. H. HALL (2-year term).....Elkins

Third District:
JOHN FOLK (1-year term).....Bridgeport
I. D. COLE (2-year term).....Clarksburg

Fourth District:
J. E. RADER (1-year term).....Huntington
W. E. VEST (2-year term).....Huntington

Fifth District:
J. HOWARD ANDERSON (1-year term).....Marytown
H. G. STEELE (2-year term).....Bluefield

Sixth District:
R. H. DUNN (1-year term).....South Charleston
H. A. WALKUP (2-year term).....Mt. Hope

¶ All original articles for THE JOURNAL must be made to it exclusively. Communications and items of general interest to the profession are invited from all parts of the state. Notices of deaths, removals from the state, changes of location, etc., are requested.

¶ Our readers are requested to send marked copies of local newspapers containing matters of interest to members of the medical profession. Name of sender should be given.

CONTRIBUTIONS TYPEWRITTEN

¶ Contract with present printer specifies all articles, communications, etc., MUST BE TYPED.

ADVERTISEMENTS

¶ Advertising forms will go to press not later than the tenth of each month. All advertisements must conform to the standard established by the Council of Pharmacy and Chemistry of the A. M. A.

WOMAN'S AUXILIARY

Mrs. R. V. Shanklin, Gary, President; Mrs. T. H. Harris, Parkersburg, vice-president; Mrs. W. C. Swann, Huntington, secretary; Mrs. W. D. Simmons, Slab Fork, treasurer.

Councillors

Mrs. C. G. Morgan, Moundsville, first district; Mrs. Ralph Maxwell, Morgantown, second district; Mrs. H. D. Price, Parkersburg, third district; Mrs. J. R. Bloss, Huntington, fourth district; Mrs. A. G. Rutherford, Welch, fifth district; Mrs. E. S. DePuy, Beckley, sixth district.

Delegates to Woman's Auxiliary of A. M. A.

Mrs. R. V. Shanklin, Gary; Mrs. B. S. Preston, Charleston. Alternates—Mrs. George Jeffers, Parkersburg; Mrs. W. B. Scherr, Morgantown.

STANDING COMMITTEES

Medical Defense Committee

C. G. Morgan, Moundsville, Chairman; H. A. Walkup, Mt. Hope; H. G. Steele, Bluefield.

Committee on Scientific Work

O. B. Biern, Huntington, chairman; G. H. Barksdale, Charleston; A. G. Rutherford, Welch.

Public Policy and Legislative Committee

R. A. Ireland, Charleston, chairman; R. H. Walker, Charleston; James McClung, Richwood; C. R. Ogden, Clarksburg, D. A. MacGregor, Wheeling.

Committee on Medical Education

John N. Simpson, Morgantown, chairman; W. T. Henshaw, Charleston; W. S. Fulton, Wheeling.

Committee on Professional Relations

John R. Shultz, Charleston, chairman, (1-year term); A. G. Rutherford, Welch, (2-year term); W. R. Goff, Parkersburg, (3-year term); Hugh G. Nicholson, Charleston, (4-year term); E. P. Smith, Fairmont, (5-year term)

Workman's Compensation Committee

W. A. MacMillan, Charleston, chairman; J. Ross Hunter, Charleston; R. H. Walker, Charleston.

Committee on Public Health

David Littlejohn, Charleston, chairman; John Thames, Charleston; Will McLain, Wheeling.

Surgical Section

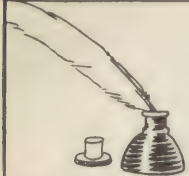
Robert King Buford, Charleston, chairman; B. I. Golden, Elkins.

Eye, Ear, Nose and Throat Section


I. D. Cole, Clarksburg, chairman; C. C. Jarvis, Clarksburg.

Hospital Association Officers

L. W. Lawson, Logan, president; J. E. Wilson, Clarksburg, first vice-president; R. A. Ireland, Charleston, second vice-president; J. S. Turk, Wheeling, treasurer.



EDITORIALS



Publisher's Liability

The extent of fraudulent advertising in the newspapers and periodicals of this country is of particular interest to the members of the medical profession because the greater percentage of such advertising is directed to readers who suffer from some mental or physical ailment. The quacks and the pill vendors have no other way to get before the public eye, and they resort to advertising in such publications as will accept their copy without question.

An interesting light upon this ever-present advertising menace has been cast by Honorable W. E. Humphrey, chairman of the federal trade commission, in the opening address at the Trade Practice Conference of the Publishers of Periodicals, held in New York on October 9, 1928. In his prepared talk, Mr. Humphrey first dealt with the outlook for the future, then with the powers of the federal trade commission, and finally with the extent of fraudulent advertising now being published in the United States. He said in part:

"The people are annually robbed of millions of dollars by false and misleading advertisements that appear in the periodicals of the country. Some are latently false, some are near the borderline and in the twilight zone. Of these I do not now especially speak, but of those that are openly and shamelessly false on their face—those about which no reasonably intelligent man could be mistaken. This class of advertisement takes its toll of millions annually from the sick, the unfortunate and the ignorant; those that are ready to try anything as a forlorn hope.

"How can this gigantic evil of false advertising be suppressed? The Department of Justice, the Post Office Department, and the Federal Trade Commission have waged war unceasingly against it. But the result has been most unsatisfactory and discouraging. What of the responsibility of the publisher? He becomes part of the plan. Without his

assistance the consummation of the scheme would be impossible. Knowingly or unknowingly, the publisher helps rob the unfortunate victim. He brings the victim and the crook together. He shares in the ill-gotten gains. In publishing such advertisement the publisher is violating the law. He is guilty of an unfair practice. In a suit by the Federal Trade Commission to suppress such advertising, the publisher is not only a proper party but, under recent decisions, he is a necessary party. The Commission, as a public duty that it is under every obligation to perform, should make the publisher a party to all suits against fraudulent advertising by publication. These facts in regard to their responsibility seem not to be generally understood by the publishers. This is the outstanding reason why the Commission has called this conference.

"We come, asking the publisher to take up this question and do what he can voluntarily to eliminate this great evil. And certainly it would be of tremendous advantage to the publishing industry to voluntarily abandon any unlawful practice rather than to be forced to do so through the courts. More protection can be given to the public by your cooperation than by years of litigation. Without your assistance, it is an endless and almost hopeless task."

Cabinet Representation

In another column we publish a copy of a resolution adopted by the American Medical Editors' Association relative to the advisability of having a medical officer in the President's cabinet at Washington. This is a matter of vital importance to the nation. The progress, prosperity and defense of a nation is greatly dependent upon the health of its citizenship. No individual can develop the full capacity of his energy unless he is in perfect health. The results of business, industrial, agricultural or military undertak-

ings, are in direct ratio to the health of those engaged.

The physical examination of soldiers for the draft was a good criterion of where we stand in the scale of a healthy nation of people. Drifting back into the days when the health of rulers was a curse to the mental, moral and physical condition of their subjects. Disclosures of the draft aroused sufficient interest in county and state governments to have organized county health units and

state health departments in many of the states and through their activities much good has been accomplished, but it is our opinion that we began at the wrong end. An efficient health department of the Federal government headed by a cabinet officer would exert an influence in states, counties and municipalities which would be almost immeasurable. If nothing more was done than enforcing the proven methods of prophylaxis and immunization, it would be well worth the unqualified support of our association.

C. A. R.



NEWS NOTES OF COMPONENT SOCIETIES



Raleigh-Mercer

A joint meeting of the Raleigh and Mercer County medical societies was held at the Virginian Hotel, Princeton, at 6:30 o'clock on the evening of September 27, 1928. The meeting was opened with an excellent banquet at the hotel and an entertainment program was given at this time.

The scientific program included a paper on "Peptic Ulcer" by Dr. A. H. Grigg, of Beckley, and discussed by Dr. R. O. Rogers and Dr. T. E. Vass, of Bluefield; a paper on "Some Points in the Diagnosis and Treatment of Toxic Goitre," by Dr. A. A. Milburn, of Beckley, and discussed by Dr. A. H. Hoge, of Bluefield; and a case report on "Cancer of the Liver," by Dr. E. S. Dupuy, of Beckley, discussed by Dr. W. H. St. Clair, of Bluefield.

The reception committee for this meeting was composed of Dr. Sam Holroyd of Athens, Dr. M. B. Caldwell of Matoaka, and Dr. J. Vermillion of Princeton.

H. G. STEELE, Secretary.

Central West Virginia

The Central West Virginia Medical Society met in Buckhann, September 19, 1928, in the best session it has ever enjoyed. Again this year, as last, the weather man did his best to prevent a successful meeting by meting out an extra day of bad weather.

The session began with a delightful ban-

quet served in the Rotary Club rooms at 7:00 P. M. Immediately following this banquet, business was disposed of, including election of officers.

Dr. Fleming Howell, Dr. W. E. Stathers, and Dr. J. J. Morgan, all of Buckhannon, were elected to honorary membership. The society went on record as favoring the revision of the present Nursing Board to include three physicians and two nurses. Dr. James McClung's candidacy for the state senate was also endorsed.

The scientific discussion for the evening was unusually good. Dr. Jonathan Forman, of Columbus, Ohio, gave a very excellent paper on "The Renal Factor in Diagnostic Studies of the Gastrointestinal Tract." Dr. W. B. Morrison, of Columbus, discussed this paper.

Dr. E. Lloyd Jones, of Wheeling, gave a fine paper on "The Specialist and the Profession." This was greatly enjoyed by all, as it dealt with the relation of the physician who limits his practice and the general practitioner. This was very practical, and it is believed that it will materially assist in the adjustment of the specialist and the general practitioner.

Dr. S. L. Cherry, of Clarksburg, read a most enjoyable paper on "Medical and Dental Cooperation." Dr. Cherry, in his usual calm and smooth manner, presented the physician and dentist as interrelated and stressed the

fact that the dentist is having to appreciate that the teeth are more important than just as an means of mastication. Dr. F. M. Farnsworth, D.D.S., and Dr. W. H. Mayo, D.D.S., both of Buckhannon, discussed this paper.

Dr. R. B. Bailey, of Wheeling, read a most interesting paper on "Surgery of the Lungs and Mediastinum." This paper dealt with surgical chest lesions. Several case reports as well as roentgenograms were shown, proving his work to be not only theory but practical procedure.

Dr. I. D. Cole, of Clarksburg, and Dr. John Folk, of Bridgeport, councillors of the state association, gave short talks on the condition of this district and the Central West Virginia in particular. Their remarks were commendable.

The following officers were elected: S. P. Allen, Webster Springs, president; J. A. Rusmisell, Buckhannon, vice-president; S. S. Hall, Buckhannon, secretary-treasurer. Delegates to the state association for 1929 were elected as follows: L. O. Hill, Camden-on-Gauley, L. W. Deeds and S. S. Hall, both of Buckhannon. Alternates, S. P. Allen, Webster Springs; H. O. VanTromp, French Creek.

Those present were: Dr. Jonathan Forman and Dr. W. B. Morrison, Columbus, Ohio; Dr. R. B. Bailey and Dr. E. Lloyd Jones, of Wheeling; Dr. John Folk, Bridgeport; Dr. I. D. Cole and Dr. S. L. Cherry, Clarksburg; Dr. W. H. Mayo, D.D.S., and Dr. F. M. Farnsworth, D.D.S., Buckhannon; Dr. E. T. W. Hall and Dr. W. H. Greene, Weston; Dr. M. T. Morrison, Sutton; Dr. Everett Walker, Adrian; Dr. H. O. VanTromp, French Creek; Dr. K. H. Trippett, Glenville; W. R. Bond, Rock Cave; and Drs. B. M. Alleman, R. G. Cutright, J. L. Pifer, L. W. Deeds, L. H. Trippett, J. A. Rusmisell, Fleming Howell, and S. S. Hall, all of Buckhannon.

The next meeting will be held at Gassaway, January 16, 1929. S. S. HALL, Secretary.

Lewis County

The Lewis County Medical Society held its regular monthly meeting on October 9, 1928, at the Memorial Library building, Weston. In the absence of Dr. M. D. Cure, the meeting was presided over by Dr. George Snyder, vice-president. On motion of Dr. E. T. W.

Hall, the regular order of business was dispensed with and the scientific program was taken up.

The society was especially favored at this meeting by a paper by Dr. W. M. Sheppe, of the Wheeling Clinic, on "Bronchial Asthma." The paper showed much thought in preparation and was well received by the society.

Another excellent paper was given by Dr. R. D. Gill, also of the Wheeling Clinic, on the subject, "Urinary Retention." It was well received and its many practical treatments were much appreciated by all present.

Members of the Lewis County Medical Society in attendance at the October 9 meeting were: Drs. George Snyder, W. H. Greene, O. L. Hudkins, E. T. W. Hall, W. P. King, G. M. Burton, E. R. Cooper, W. T. Smith, Dr. Andrews, and Dr. S. S. Hall, of Buckhannon. O. L. HUDKINS, Secretary.

Greenbrier Valley

The Greenbrier Valley Medical Society held a fine meeting at the Greenbrier Valley Hospital at Ronceverte on the evening of September 25, 1928. Dr. A. D. Ferrell, of Ronceverte, gave a paper on "Cardia-Spasm," and Dr. Campbell, of Ronceverte, read a paper on "Acute and Chronic Urinary Conditions." A case report was given by Dr. Dunning of Ronceverte.

A good crowd turned out for this meeting, which was originally scheduled to be held at Old Sweet Springs. A luncheon was served to the members present, and two new doctors, Dr. Campbell and Dr. Wiggins of Spring Creek, were taken into the society. The next meeting of the Greenbrier society will be held the latter part of November, at which time Dr. C. A. Ray, of Charleston, president of the state society, will probably make his official visit. J. G. LEECH, Secretary.

Monongalia County

A very interesting meeting of the Monongalia County Medical Society was held in the Junior High School Library, Morgantown, at 8:30 o'clock on the evening of October 4, 1928. The essayist of the evening was Dr. R. B. Bailey of the Wheeling Clinic, Wheeling, W. Va., who read a paper on "Compression

Therapy in the Treatment of Pulmonary Tuberculosis."

A large attendance turned out for this meeting, which was the first one this fall. Dr. Bailey's paper was discussed by a number of the members present at the session.

G. R. MAXWELL, Secretary.

Cabell County

An interesting meeting of the Cabell County Medical Society was held on Thursday evening, September 27th, at 8:30 o'clock. The following papers were presented: "Spinal Anesthesia," by Dr. J. A. Guthrie and Dr. B. H. Denman; also an interesting pathological report was made by Dr. R. M. Bobbitt and Dr. F. C. Hodges.

The society contributed one hundred dollars to the storm sufferers. A smoker followed this meeting, with a large number of the members attending.

I. I. HIRSCHMAN, Secretary.

Kanawha County

The first fall meeting of the Kanawha Medical Society was held in the assembly room of the Public Library building on the evening of October 9 at 8 o'clock. The essayist of the evening was Dr. A. S. Lloyd, who gave a very interesting paper on "Gangrenous Balanitis" with a report of a case. This paper was discussed by Dr. G. G. Irwin and Dr. John E. Cannaday, both of Charleston.

Before Dr. Lloyd's paper was presented, a short business session was held, during which the matter of establishing a medical library for the Kanawha County doctors was discussed. Dr. W. W. Point, president of the Kanawha Medical Society, appointed a committee of three members to investigate the possibilities for such a library and the matter will be reported upon at the next meeting.

J. R. SCHULTZ, Secretary.

HOSPITAL NOTES

Compensation Cases

At conventions of the Hospital Association of Pennsylvania there have been many discussions on the unfairness of the law which limits the amount to be paid hospitals for care of workmen's compensation patients to \$100. Time and again superintendents have told of much greater sums expended in the 30 days fixed by law during which services must be furnished at the expense of the employer, and in spite of vigorous action by the state association no relief could be obtained.

A ruling of the workmen's compensation board limiting the cost to the employer to \$100 is void, according to a superior court decision quoted by a special deputy attorney general in a letter sent to members of the hospital association by Howard E. Bishop, superintendent, Robert Packer Hospital, Sayre, Pa., under date of September 29. The decision and other information of great importance to Pennsylvania hospitals and of interest to other administrators anxious to obtain more favorable remuneration for service to industrial patients, are contained in the following letter:

DEPARTMENT OF JUSTICE

HARRISBURG, PA.

June 26, 1928.

Honorable Arthur P. Townsend,
Budget Secretary,
Harriburg, Pennsylvania.
Sir:

We have your request to be advised with regard to certain questions which the recent audits of state hospitals for the sick and injured have suggested.

We shall state and answer your questions, in their order:

1. The ward rate charged to patients should be, as nearly as practicable, the actual cost of the service rendered.

2. In compensation cases these institutions, state hospitals, are entitled to collect from employers the cost of surgical, medical and hospital services and medicines and supplies furnished to injured employees, not-

withstanding the fact that the injured employees would be entitled to free service if their cases did not come within the provisions of the Workmen's Compensation laws. This point was expressly decided by the Supreme Court of Pennsylvania in *Trustees of State Hospital vs. Lehigh Valley Coal Co.*, 267 Pa. 474 (1920).

With regard to the amounts collectible by the hospitals, the situation is as follows:

Section 306 (e) of the Workmen's Compensation Act of 1915, as amended by the Act of June 26, 1919, P. L. 642, provides that:

"During the first thirty days after disability begins, the employer shall furnish reasonable surgical and medical services, medicines, and supplies, as and when needed. . . . The cost of such services, medicines, and supplies shall not exceed one hundred dollars. . . . In addition to the above services, medicines and supplies, hospital treatment, services, and supplies shall be furnished by the employer for the said period of thirty days. The cost for such hospital treatment, service, and supplies shall not in any case exceed the prevailing charge in the hospital for like services to other individuals. . . ."

The Superior Court, in *Denne vs. Plymouth Coal Mining Company*, 91 Pa. Sup. Ct. 429 (1927), held that under this section the amount of the employer's liability for "hospital treatments, services and supplies" furnished during the first thirty days after disability begins is *unlimited*; and that a ruling by the Workmen's Compensation Board *attempting to limit* such liability to one hundred dollars was *void*.

Accordingly, in computing the amounts of these charges the hospitals should include all items which they would charge to paying ward patients for similar services. These items would include the full ward rate plus charges for services of physicians or surgeons on the hospital staff, fees for the use of the operating room and X-ray apparatus, if such charges are customarily made as a part of the cost of treating paying ward patients. The employer can not, however, be required to pay any item which would not be charged against the patient if he were in the hospital as a paying ward patient.

3. Your last question was answered by Attorney General Francis Shunk Brown in an opinion dated February 17, 1916 (Official

Opinions for 1915-1916, page 575). He held that if the hospital is required to furnish care and services beyond the period during which the employer is required to furnish such services, the hospital may charge the injured person with the cost of treatment unless the injured person is within the classes of persons who are entitled to free service, in which case a charge could not properly be made under any circumstances.

Very truly yours,

DEPARTMENT OF JUSTICE,

By Wm. A. Schnader,

Special Deputy Attorney General.

—*Hospital Management.*

McMillan Addition

The construction of a new addition to the McMillan Hospital, Charleston, for which bids were opened on October 29, is expected to be started early this month and the work is scheduled to be completed next spring. The new wing will be four stories high and will provide room for 50 more beds and six four-room apartments which will be used for dwelling purposes and for physicians' suites. In addition, the new wing will also provide a completely equipped operating room and an electrical sterilizing room.

CASE REPORTS

Automobile Accidents and Tetanus

By ALBERT H. HOGE, M.D.

St. Luke's Hospital, Bluefield, W. Va.

Mr. C., aged 30, was admitted to this hospital on June 18, 1928, at 2 P. M., suffering from an unusually bad laceration of the hand, due to an automobile collision.

Soon after admission, before the hand was dressed, 1,500 units of antitetanic serum were administered.

On June 29th, at 10 A. M., patient was discharged from the hospital feeling well, and attended a banquet that night.

On June 30th, at 8 A. M., eleven days after the injury, the patient was readmitted to the

hospital, unable to open his mouth; muscles of back and neck were very rigid.

A diagnosis of tetanus was made.

Patient was put to bed and 10,000 units of antitetanic serum were given intravenously, followed immediately by a convulsion, collapse, and death in about ten minutes from an anaphylactic reaction.

What is to be learned from such a calamity as this?

What are the possibilities of tetanus in a lacerated or punctured wound caused by an automobile accident?

Research workers have demonstrated the presence of tetanus bacillus in the stools and intestinal tract of man and animals such as the horse, cow, dog, and cat. Therefore, any road or highway traveled by these animals is necessarily contaminated, and any person injured by an automobile, or upon such a highway, is a potential candidate for tetanus and should be so treated.

All are familiar with the usual prevention taken of 1,500 units of tetanus serum; so much so that patients often request that it be given to them after an injury.

There seems, though, a general belief among a great many physicians that this one dose is an absolute preventative against tetanus.

The tetanus bacillus is a spore-forming bacteria and is one of the most difficult to destroy. The usual incubation period is from three to fifteen days. This may be delayed to one month, and in medical literature are found reports of cases occurring much later than thirty days after the original injury.

Tetanus serum is absorbed rather rapidly, when given subcutaneously, and is gradually eliminated until by the tenth day after administration very little, if any, remains in the system. It should be apparent that one dose can not suffice in all cases.

The present-day injuries caused by automobile accidents are oftentimes similar to those received by soldiers during the war. It would seem, therefore, best to follow the same routine that was used in all the wounded during the war.

Fifteen hundred units of antitetanic serum should be administered as soon after the accident as possible, if there is a laceration or punctured wound. The dose should be

repeated in ten days, if the wound contains necrotic material. A third dose should be given if it is found necessary, at a later date, to carry out any operative procedure upon the wounded parts.

One must consider the danger of an anaphylactic reaction after each dose, such as occurred in the case reported. This can be guarded against by testing the patient's reaction before each dose is given, a procedure which, unfortunately, was not carried out in this case.

It is not a pleasant task to report a case such as this, but if, by so doing, one can aid in saving others, it should be done.

We are accustomed to considering all patients injured by firearms and similar implements to be in danger of developing tetanus and treat them accordingly, which is probably responsible for the very few cases of tetanus developing after such injuries.

The Los Angeles County Hospital reports forty-nine cases of tetanus over a six-year period, not a single one developing from an injury from any form of firearm. A careful search of the records of this hospital, over a period of ten years, shows twelve cases that developed following injuries other than firearms.

I believe that every person injured or bitten by any animal known to harbor the tetanus bacilli in its intestines, and also any injury received upon a highway traveled by these animals, should be treated the same as gunshot wounds, by administering tetanus serum in proper dosage.

Since man harbors the germ in the intestinal tract, the same precaution should be taken in any form of punctured wound of the intestines, and also in all extensive resection of the intestinal tract.

"Parinaud's Conjunctivitis"

By RAYMOND A. TOMASSENE, M.D.

Wheeling, W. Va.

On December 14, 1927, while treating Mr. J. J. in my office for a low-grade sinus infection, he spoke to me regarding his daughter, J. J., age 12, whom the family physician had reported as having mumps. He had observed a slight swelling of his daughter's left eye

and asked me to see her concerning it. Examination that night at her home revealed a moderate swelling of the periauricular and cervical nodes on the left side, with some tenderness. The left eye was slightly congested; both lids were swollen. The conjunctiva was greatly engorged, the upper fold showing a fairly large granulation with a yellow point of beginning necrosis and several large follicles. There were several other flat granulations arising from the tarsal conjunctiva on the lower lid. No corneal involvement. No constitutional symptoms. Application of weak silver solution with colyrium was started. Several days later the condition was about the same. Blood picture at this time showed R. B. C. 4,570,000; H. B. 100%.

W. B. C. 6400	L. Lymph. 5%
Polys. 59%	Eosin. 2%
S. Lymph. 33%	Trans. 1%

Smear from eye negative for acid-fast bacilli. No leptothrix by our method.

Smears and cultures from the secretion showed no organisms. I had the laboratory look carefully for bovine tuberculosis because the father has charge of the beef department of a large packing house and informed me he was daily seeing lesions of this character. This girl being the only child, it occurred to the father that he might have carried the invading organism home.

Guinea pig inoculated on February 1, 1928, with fluid and scrapings from conjunctiva. Frequent blood counts were made, but the picture was essentially the same as reported; no eosinophilia.

On February 7, 1928, periauricular gland broke down and was incised by family physician. A direct smear of gland contents revealed distinct acid-fast bacilli. Pus from gland was injected into a second pig.

February 20, 1928.—Conjunctiva granulating nicely; necrotic area all gone. Is using 2% mercurochrome drops in eye, along with daily application of tracumin 5% and cod liver oil internally.

The eye started to improve as soon as I began to use tracumin, which was in about the third or fourth week. This case was under my observation for almost 3 months.

The condition gradually cleared up, leaving only a pallor of the conjunctival folds. The incised gland healed up very nicely. At no time was there any corneal involvement.

The pathologist at the Ohio Valley General Hospital made the following report: Washings and currettings from left eye were injected into a guinea pig. At autopsy the spleen and liver were found to present lesions grossly typical of tuberculosis.

On February 9, 1928, direct smear from pus of cervical gland showed acid-fast bacilli. Autopsy of guinea pig injected showed gross lesions typical of tuberculosis.



Dr. W. S. Shepherd, of Charleston, has recently returned from Boston, where he attended the Clinical Congress of the American College of Surgeons.

Dr. and Mrs. J. Franke Fox, of Bluefield, were in New York last month to bid farewell to their son, Edwin Fox, who sailed on October 6 to spend six months in the study of art abroad. From New York, Dr. Fox went to Boston, where he attended the meeting of the American College of Surgeons.

Dr. Frank LeMoyne Hupp, of Wheeling, has returned to his home after spending several months at his summer residence at Hewlett's Landing, New York.

Dr. and Mrs. Robert B. Price, of Charleston, are on a motor trip in New York and New England. They expect to return early in November.

The marriage of Dr. R. R. Summers to Miss Helen Crichton, both of Charleston, was solemnized at the First Presbyterian Church on the evening of October 11, 1928. Dr. and Mrs. Summers left immediately after the reception for New York, from where they sailed for Bermuda on their wedding trip.

Dr. and Mrs. James E. Roberts, of Charleston, are visiting friends and relatives in the eastern part of Virginia.

Dr. J. G. Leach, of Quinwood, was a recent visitor in Charleston, where he attended to several matters of business.

Dr F. F. Sowers, of 500 Ogden Avenue, Fairmont, has announced the opening of his office for Thursday, November first. Dr. Sowers' practice will be limited to dermatology and syphilology.

Dr. C. M. Vaughn, a member of the Wayne County Medical Society and a former resi-

dent of Kenova, has removed to Russell, Ky., where he will practice his profession.

Dr. Paul E. Prillaman, of Beckley, and Miss Sally Doriot Haller, of Wytheville, Virginia, were married on June 11, 1928.

Harriet P. Dunlap, formerly head nurse at the Presbyterian Hospital, New York, has been appointed superintendent of nurses at the Hinton Hospital, Hinton, W. Va.

GENERAL NEWS

Hospital Meeting

The third annual meeting of the recently reorganized Hospital Association of West Virginia will be held at Charleston on December 3, 1928, according to a recent announcement released by the board of directors of that organization. Plans for the convention program are now being made up, and it is thought that Matthew O. Foley, editor of *Hospital Management*, will be the principal speaker in attendance.

The meeting will open at 9 o'clock on Monday morning, December 3, and one hour will be given over to the registration of visitors and members. The general session will be called to order at 10 o'clock by Dr. L. W. Lawson of Logan, president of the association. An address of welcome will be delivered by Mayor W. W. Wertz of Charleston.

The annual banquet of the association will be held at the Kanawha Hotel, and a number of special features are being arranged to make this affair as attractive and interesting as possible.

New officers of the Hospital Association of West Virginia for 1929 will be elected during the afternoon session and the election will follow the program for the general session. A number of changes in the constitution and by-laws of the organization will also be considered at that time.

Present officers of the Hospital Association are: Dr. L. W. Lawson of Logan, president; Dr. J. E. Wilson of Clarksburg, first vice-

president; Dr. R. A. Ireland of Charleston, second vice-president; Mr. Joe W. Savage, executive secretary; and Mr. J. S. Turk of Wheeling, treasurer.

Hugh Holmes Carr, M.D.

Dr. Hugh H. Carr, of Fairmont, a member of the state association since 1909, died at his home in Fairmont on October 21 following a two-weeks' illness with pneumonia. Dr. Carr was 46 years of age at the time of his death. He was the son of Dr. Logan Carr, of Baltimore, and is survived by his widow, formerly Helen Kirkland of Wheeling, and one daughter, Catherine Carr, 13 years of age.

Dr. Carr was graduated from Cornell University Medical College in 1904 and two years later was admitted to practice medicine in West Virginia. He located in Fairmont and practiced there until his death. Dr. Carr appeared on the program of the annual meeting at Fairmont last May. He was well known as a successful and ethical practitioner in Marion county and northern West Virginia.

Dr. Paul Ringer Ill

Dr. Paul H. Ringer, of Asheville, North Carolina, well known in West Virginia, has recently had pneumonia at the Roosevelt Hospital in New York City. Dr. Ringer had been on a cruise from San Francisco to New York via the Panama Canal. Shortly after arriving in New York he was stricken with lobar pneumonia. He is reported as improving and his recovery is expected.

From Other Journals

BUREAU OF EPIDEMIOLOGY

Undulant Fever

(Malta Fever)

A disease known as undulant or malta fever has existed on the Island of Malta and elsewhere about the Mediterranean for many years. In 1887 Bruce discovered the cause to be a microorganism, now designated *Brucella Melitensis*. The source and mode of infection remained in doubt until 1905, when it was found to be contracted from goats by consuming infected goats' milk or cheese, or by handling infected goats or goat meat, or from contaminated soil or dust.

During the past few years undulant fever has been reported with increasing frequency from various localities throughout the United States and other countries. In a majority of these cases there has been no history of contact with goats or goat products.

For a long time contagious abortion of cattle has been a serious economic problem in this country and the possibility of human infection from the causal organism has occupied the attention of investigators. In 1897 Professor Bang discovered a bacillus, now known as *Brucella abortus*, as the etiological factor in this disease.

The similarity of the morbid condition in goats due to *Brucella melitensis* and that in cattle due to *Brucella abortus* suggested not only a close relationship between these two organisms but also that *Brucella abortus* as well as *Brucella melitensis* may possess pathogenic properties for the human subject. Since 1918 numerous experiments and investigations relative to these relationships have been carried out and the following conclusions reached:

1. *Brucella melitensis* and *Brucella abortus* are not distinct bacteriological species but merely varieties of one and the same species.
2. These two organisms show reciprocal agglutination, and can only be definitely differentiated by agglutinin absorption reactions. They seem to be more closely related than the serologic types of meningococcus.
3. *Brucella abortus* may infect man, the

channels of transmission from cattle to man being the same as in the case of *Brucella melitensis* from goats to man.

Several cases of undulant fever in Kentucky have just recently come to the attention of the State Board of Health. Samples of blood were submitted to the State Health Laboratory and the diagnosis confirmed by the agglutination test, using the *Brucella abortus* as antigen. In one instance the infection was definitely traced to milk of an infected cow. Other suspected animals are being tested.

Wherever investigations have been carried out, infectious abortion in dairy herds has been found to be widespread. Very often animals are found, by blood and milk examination, to be infected, although there is no history of abortion in the herd. These animals are known as "spreaders" and are responsible for the dissemination of infection both among animals and man. No doubt undulant fever has been in existence longer and is more prevalent in this country than is commonly suspected.

An association between undulant fever in man and abortion disease in swine and other domestic animals has also been emphasized by some investigators. In fact, several cases have been quite definitely traced to hogs. The porcine strains of *Brucella abortus* give serological reactions which are identical with those of the bovine strains.

Symptoms.—Undulant fever is a specific, febrile, septicemic infection. The characteristic symptoms are headache, anorexia, loss of weight and strength, and a syndrome of chills, fever and sweats of varying intensity over long periods of time, frequently with remissions.

The fever is often very irregular and exhibits undulation which vary in length. Shifting articular rheumatism and neuritic manifestations are common. Orchitis and mammitis frequently occur. The average period of temperature is given from 60 to 120 days. The mortality is low.

Diagnosis.—The diseases most commonly confused with undulant fever are typhoid and paratyphoid fever, malaria, acute rheumatism, septic infection, and the typhoid type of tularemia. In most instances the differen-

tiation of these affections is difficult and often impossible without clinical laboratory examination. The isolation of *Br. melitensis* or *Br. abortus* from the blood stream is the most reliable test. The former is quite readily grown, but cultures of the latter are rather difficult to obtain. Agglutinins appear in the blood of undulant fever cases as early as the fifth day, hence the agglutination test is most commonly used in confirming the diagnosis.

The State Board of Health Laboratory is prepared to make the agglutination test for undulant fever along with that for tularemia, typhoid and paratyphoid fever. Blood cultures will also be grown where indicated. All of these tests can be made from the same specimen, collected as for a Wasserman, but under strict aseptic precautions. Write to the State Board of Health for a suitable container.

Physicians are urged to be on the lookout for a typical long-continued or undulating fever and joint troubles of doubtful etiology. Make special mention on the information blanks of any unusual features of the case in question and designate clearly by a cross what tests are desired.

Samples of blood and milk from suspected dairy cows may also be tested in the State Health Laboratory. The former had best be secured by a veterinary surgeon. Containers for the milk can be secured from the State Board of Health upon request. Guinea-pig inoculation is used in detecting infection in the milk, and requires about five weeks for completion.—*Kentucky State Health Bulletin*.

Serum Sensitization

The possibility of serum sensitization is foremost in the mind of every physician whenever the occasion arises for the administration of a serum for prophylactic or therapeutic purposes. This possibility has actually deterred some from using a serum except in the case of urgent necessity. To a large extent those who are so extremely conservative have had one or more experiences which were altogether unpleasant. Others think of it because of reading reports of such experiences.

On the other hand, there are a vast number of physicians who are beginning to believe that serum sensitization at the present time is by no means the serious factor that it was

when sera were first introduced. They contend that the advancements which have been made and which have led to the concentration and purification of some of the more important sera have so greatly reduced the risk that it now may be regarded as being negligible.

It is quite true that in the past few years there have been a number of sera introduced which are still passing through the developmental stage, and which have not been concentrated or purified as satisfactorily as some of the older ones. The extensive use of toxin-antitoxin has also raised the question as to whether or not a greater number of individuals are being sensitized with horse serum. The interest which has been awakened in the subject has brought forth a number of excellent contributions to medical literature in the past few years.—*International Med. Digest*.

The General Practitioner

The general practitioner's work has gradually become somewhat circumscribed by the inroads of specialism. The younger men, coming from the schools, trained under the tutelage of specialists, seem to look forward to a rather narrow field of general practice for themselves and some tamely refer all work of special character to the workers in special lines. The general practitioner of a generation ago was expected to take care of all kinds of work, and if a man of character, ability and vision, did so to his credit and to the satisfaction of his patrons and to his financial benefit.

This is a plea for the general practitioner of today—not a puerile attempt to inveigh against the specialist. Each has his place and the general practitioner must see to it that he gets what belongs to him—the specialist will get his share. The general practitioner must be more than a procurer for the specialist; he must be a broad general practitioner. He must do what he feels his education, native ability and tact fit him to do. He must know his limitations. His professional and economic success depends largely upon himself. The training of the medical man of today fits him for a wider range of general practice than the training of his forbears in the profession, if the will to do it is inherent in the

man. If he feels able to do some of the general surgery of the community, he should do it. The average run of simple and compound fractures fall to the general practitioner if he wills to take care of them—and he should. Cuts and lacerations of most all degrees of severity, resulting from auto accidents, farm machinery and industrial mischance, he should be prepared to take in hand and treat satisfactorily. An exception may be made of brain and abdominal complications. If he feels that he has the training and courage to do an appendectomy, there is no real good reason why he should not do it, at the home of the patient or in an emergency hospital if one is available.

Tonsillectomies, most general practitioners can do if they will. Most external diseases of the eye are within the scope of the knowledge of the general practitioner to treat, and so are certain middle and external ear diseases. Refraction is successfully carried on by many general practitioners, and if the physician knows his limitations, is a fruitful source of income and is a satisfaction to his patrons. The average layman would rather trust a simple refraction to his family physician than to the neighboring optometrist or the spectacle peddler. The accidents and emergencies of obstetric practice call forth the best there is in the general practitioner, and, if he is equal to most of them, he is fitted to do general surgery, for obstetric surgery is, for the most part, major surgery.

Some rectal and genito-urinary troubles come in the same class.

Physiotherapy (true physiotherapy, not *physioquackery*) offers much in the way of office treatment to the general practitioner.

The office work of the general practitioner can be increased to almost any extent, if the will to do so is inherent in the man.

The general practitioner is not likely to starve. On the other hand, a golden era for the general practitioner is just at hand.

The general practitioner must look out for himself and for his clientele—no one will do it for him.

If this is heresy the editor is ready to take the consequences.—*Nebraska State Medical Journal*.

Aviation and Deafness

Any one will approve any reasonable experiments to cure physical afflictions. We have lost our patience, however, with those people who are attempting to improve impairment of hearing, or even cure, by taking the afflicted up in an airplane and, if necessary, "shocking" them by "stunt" flying.

Think of the unfortunate six-year-old boy who went up in a plane at Springfield, Mass., to be cured of deafness, whose father requested the pilot to do some stunt flying. The pilot did so, although he had been forbidden stunt flying by his employers. In attempting to loop the loop the plane crashed to the ground, killing the pilot, the boy, and another passenger. Other accidents with fatalities can be cited.

If there were any unanimity of medical opinion on the end results of this method of offering aid to the hard-of-hearing, there might be some excuse for pursuing this procedure. On the contrary, airplane flights, with or without stunts, and no matter at what height, are not a cure for deafness.

Lieutenant Colonel Levy M. Hathaway, flight surgeon of the Army Air Corps, is spreading publicity in an endeavor to correct what he says has proved an erroneous impression. *Per contra*, instead of being a cure for deafness, he states, deafness is caused and aggravated by flying.

Colonel Hathaway urges that an end be put to the increasing flights being made as an aid to the hard-of-hearing. The actual effect on fliers proves the contrary, as defective hearing is common among them, and considered occupational. The deafness tends to progress as they keep flying.

The endangering of life and limb to cure deafness by airplane stunts is senseless, and ought not to be permitted. We should do everything we can to prevent it.—*Pennsylvania Medical Journal*.

Slip of Sacro-Iliac Joint

(Horn v. Yellow Cab Co. (Calif.), 263 Pac. 1025)

The plaintiff was injured by the negligence of the defendant's cab driver. From the testimony it appears that she sustained a severe

nervous shock and an injury to her back. Her head struck some object, driving her teeth through her lip. The injury to her back caused instant total disability, accompanied by intense pain. Her physician diagnosed the back injury as a slip of the sacro-iliac joint, administered an anesthetic, manipulated the joint into place, and put the plaintiff into a plaster cast extending from the hips up to the region of the ribs, which she wore for three weeks. When the cast was removed, her body was strapped with adhesive tape for about a week and then placed in a flexible brace reinforced with steel, which she still wore nine months after the accident. She remained in the hospital for five weeks, and was unable to perform any kind of work for another month. She then obtained employment as a stenographer, but on account of the pain and exhaustion from the injury she worked only part time and in three months was compelled to give up the position. The jury awarded \$7,500 damages. The defendant admitted liability but appealed, contending that the damages awarded were excessive. The California district court of appeal held that the only method of determining whether a verdict is excessive is by comparing the amount of damages awarded with the evidence, and in view of the facts that the major injury received was of a particularly distressing, disabling and serious character, from which the plaintiff would probably not recover for some time after the trial, and that there was a predisposition to recurrence, the judgment of the trial court would not be interfered with.—*J. A. M. A.*

Stubborn Patients

This case illustrates the dangers of a lawsuit which are always present when a physician is called upon to deal with a patient who is either too ignorant or too stubborn to follow his directions but who, nevertheless, has no hesitancy in bringing an action against the physician charging him with negligence.

The doctor was called to see an old lady whom he had known for twenty years. Upon arriving at her home he was given a history that the plaintiff had fallen down a flight of stairs. She complained of pain in the right shoulder and gave evidence of severe shock.

The doctor prescribed stimulants, but the patient refused to permit him to make any examination of her injury. The doctor told the patient that she should go to a hospital and have an X-ray taken, but this she refused to do, claiming that she was too old and, further, that it was not necessary anyway. The doctor thereupon left her home and on several occasions thereafter, when he saw the woman, advised her to have an X-ray taken and to go to the hospital, but she persisted in her refusal either to have an X-ray taken or to have any treatment rendered to her shoulder.

The patient and her husband thereafter sued the doctor, claiming that he was unskillful and negligent in failing to set the arm and shoulder of the plaintiff, and that he carelessly and negligently failed to give instructions to the plaintiff with respect to the use of her arm. After the commencement of the action an investigation of the facts by the plaintiff's attorneys convinced them that the case was without merit, and they voluntarily discontinued.—*New York State Journal of Medicine.*

Insurance Reports

That the House of Delegates of the American Medical Association adopted the following resolution on May 17, 1927, indicates rather strongly a reaction against a common abuse:

"Whereas, there is a growing tendency on the part of some insurance and indemnity companies, as well as industrial concerns, to impose on physicians by requesting or expecting that more or less complete physical examinations, including written reports of same, or that a written expert medical opinion concerning patients shall be made for nominal fees or perhaps no fees at all, and that there is increasing tendency on the part of such organizations or concerns to shift responsibility by making erroneous claims that the services are in the interest of the patient or client from whom the physician can not justly claim compensation; therefore, be it

"Resolved, that it is the sense of the American Medical Association, as represented by this House, that the members of the American Medical Association are under no moral or

legal obligations to furnish professional services or expert professional opinion concerning any patient, or reports concerning professional services rendered any patient, to insurance or indemnity companies, to industrial concerns or their agents, or for the benefit of any third party, unless paid the customary fees charged by the medical men of that community for similar services rendered to private patients."

Few physicians have escaped receiving a courteous note from some life insurance company to the effect that "in the month of such a year you treated John Doe. Will you send us a report of your findings and treatment?" The question of responsibility to patient and of inviolability of confidence in these cases is often a nice one. Is the physician's report for his patient's interest or the insurance company's? The question whether this clinical work of searching back records and filling out a questionnaire should be a gratuitous service or not has evidently received frequent consideration by members of the Association, and has been explicitly answered in the adoption of the above resolution.—*California and Western Medicine.*

Lecture Series

The New York Academy of Medicine has just announced a third series of lectures for the general practitioner. These lectures will be held at 4:30 o'clock each Friday afternoon at the headquarters of the Academy, Fifth avenue and 103d street. The first lecture will be given Friday, November 2, 1928, and the series will continue through April 12, 1929. All members of the medical profession are cordially invited to these lectures at any time they are in New York City.

Book Reviews

Dr. Joseph Collins, the distinguished neurologist, whose two books, *The Doctor Looks at Literature* and *The Doctor Looks at Love and Life*, have revealed him as a litterateur and critic as well, writes of subjects that are of interest to the layman in *The Doctor Looks at Marriage and Medicine*, which Doubleday-Doran have just published. Murderous mothers who, in their excessive affection for

their children, their jealousy and their possessiveness, warp their children's normal emotional development, and synthetic mothers who are often worse than the natural ones because they depend upon their intelligence rather than their emotions, are discussed with candor, as are the harmonious and inharmonious relations between the sexes and the significance of abnormal sex relations.

The fundamentals of mental hygiene and what the doctor should and should not tell his patient are chapters which have even more interest for the laymen than physicians. Dr. Collins writes with a shrewd wit and a sparkling, incisive style that is unencumbered with technical or scientific phrases.

Rutherford Sanitarium

The cornerstone of the Rutherford State Hospital at Beckley was placed with fitting Masonic ceremonies on October 13, 1928. The principal address of the day was made by Governor Howard M. Gore. The laying of the cornerstone followed a parade through the business section of Beckley, participated in by members of the Masonic order and the Beckley school children.

Members of the state board of control, James S. Lakin, F. W. McCullough and C. A. Jackson, also participated in the cornerstone laying, and also inspected the site and grounds with Dr. J. G. Petit, superintendent of the state tuberculosis hospital at Hopemont.

The new Rutherford hospital will be devoted to the care and treatment of tubercular patients. The institution will cost approximately \$185,000 and will care for one hundred and twenty-five patients.

How to Kill Your Society

Don't come to the meetings. If you do come, come late. If the weather doesn't suit you, don't think of coming. If you do attend a meeting, find fault with the work of the officers and other members. Never accept office, as it is easier to criticize than to do things. Nevertheless, get sore if you are not appointed to a committee; but if you are, do not attend the committee meetings.

If asked by the chairman to give your opinion regarding some important matter,

tell him you have nothing to say. After the meeting, tell every one how things ought to be done. No nothing more than is absolutely necessary, but when other members roll up their sleeves and willingly and unselfishly use their ability to help matters along, howl that the organization is being run by a clique. Hold back your dues as long as possible, or don't pay them at all. Don't bother about getting new members.—*The Aesculapian*.

Medal Awarded

Dr. Park Lewis, of Buffalo, N. Y., vice-president of the National Society for the Prevention of Blindness, was presented with the Leslie Dana medal at St. Louis on October 18, 1928, "for the most outstanding achievements in the prevention of blindness and the conservation of vision" in America. The medal was given through the Missouri Association for the Blind.

The medal was presented to Dr. Lewis, on behalf of Mr. Leslie Dana, by Dr. Edward Jackson of Denver, Colo., editor of the *American Journal of Ophthalmology*, who was the first recipient of the award in 1925. The inscription on the medal reads: "To Dr. Park Lewis, physician, scholar, humanitarian—for lifelong devotion to the prevention of blindness—1928."

Impressions of a Trip to Italy

By FRANK LEMOYNE HUPP, M.D.
Wheeling, W. Va.

We departed from New York City on the new motorboat *Saturnia* at midnight, May 4. With a horsepower of 24,000 and a speed of 21 knots, the crossing into the Mediterranean to Marseilles, France, was made in eight days. Two days later the Gulf of Naples was entered, outspread from Ischia to Capri. But as this is purely a medical letter it would not be in keeping with the fitness of things to enter into any description of erupting Vesuvius, Pompeii, the tomb of Virgil, the monuments of antiquity, the archæology, or the perfect examples of architecture. Nor can we stop to discuss the exalted conceptions and genius of Michael Angelo and his achievement of harmonizing the ancient with the modern in the use of his chisel and brush;

the supreme survival of the Renaissance as manifested in such complex and complete palaces as the Farnese and a hundred others of the purest and most luxuriant architectural examples. Then there is Rome's Piazza San Pietro, with its splendid Bernini colonnades and fountains, Christianity's largest temple; indeed, it would be a sacrilege to even touch the interior of this Basilica, and impossible to do justice to a hundred thrills and impressions not purely medical.

In Naples I was privileged to see but one institution for the care of the sick; that was the Neapolitan Emergency Hospital. It is more than four centuries since its main buildings were constructed, right in the densely populated part of the city. Indeed, in reaching it one was obliged to drive through narrow alleys crowded with humanity; two cars could hardly pass, and when they did the greatest care had to be exercised to prevent injury to pedestrians.

We were driven through an open archway which showed the ravages of time much the same as the Arch of Titus in the Roman Forum. After much gesticulation and a polyglot jargon we managed to be taken to one of the internes, who had spent a year in Berlin and seemed to understand some of my efforts at wrestling with the lingo of Rudolph Virchow.

At any rate, we saw some fifty fracture cases involving many of the bones of the body, and twice as many more traumatic cases. There was not a gunshot or a stiletto wound in any of the 250 beds. These simple-minded toilers for bread are of the working class. Indeed, they must be, for under the rigid dictatorship of the wise and far-sighted Benito Mussolini, *Il Duce del Fascismo*, every man must have a job, and from personal observation that job means toil from sunrise to the going down of the same. A nation of contented, happy people, and whether by fear or by choice, today Italy has no room for the criminal nor for those afflicted by ennui.

A compound fracture of the thigh was admitted while I was leaving the hospital. Their operating room was equipped with every modern convenience, and the dressing rooms were immaculate and everywhere there was exhibited infinite care as to aseptic detail.

This may be said definitely of every hospital we visited in Italy. The wards were clean, quiet, well ventilated, and presided over by registered nurses. I thought they were rather careless as to their mode of immobilization of some of the long bone fractures, as only sand-bags were used for this purpose in addition to the Buck's outfit. Otherwise, their technique presented no new or materially different features than those utilized in our American hospitals. In the sterilization of the skin a 5% picric acid solution in alcohol seemed to be preferred to the iodine.

The Polyclinic in Rome.—About eight minutes from the Savoy Hotel, passing part of the ancient wall and archways, built before the days of the preaching of the Carpenter of Gallilee, one comes upon a group of detached buildings, for the most part connected by glass-enclosed corridors, above and below. At the Polyclinic of Rome, Professor Ræffaelle Bastianelli, chief of the Surgical Division of the Royal University of Rome, and Professor Roberto Alessandri do their work. The ensemble is surrounded by a high iron fence, probably eight feet high. There are acres of yard-way with beautiful landscape gardening, shrubbery, exotics, blooming flowers, tall palms, pines, eucalyptus, olive and fig trees. As one approaches the tall iron gates the pressure of an electric button brings a response from within, and the heavy gate swings on its hinges and the visitor is welcome to what seems more like a paradise than the grounds of a modern hospital. Across the street are vendors of fruit, flowers, and wine, where one can refresh himself or purchase gifts for friends within the wards. Bastianelli was in Africa, whither he had been called in consultation.

One of the assistants to Professor Alessandri directed me to the chief's office, where I was cordially received. The Professor speaks excellent English, is a tall, handsome Italian, weighs about two hundred, has white hair and looks every inch the great and learned teacher and operator we all know him to be. Perhaps some of the readers of the Journal will remember that he delivered an address before the meeting of the American College of Surgeons at Montreal in 1926, while Professor Bastianelli addressed the

International Symposium on Cancer Control at Lake Mohonk in September, 1926.

Professor Alessandri apologized for the smallness of the morning program, and described the survey of the patient then being prepared for operation.

A woman, aged forty, with a tumor of the right suprarenal gland, filling much of the right upper abdomen and ileocostal space, about the size of an adult head. The superficial veins of the back, side and abdomen were very large, tortuous, and varicose. During the eight months' development of the tumor the woman had grown a full beard and mustache, and the lower abdomen, thighs and legs were covered with hair. Indeed, one was impressed with her male features, and had to look twice to see if it were not a man about to undergo operation. Before the development of the tumor the patient was said to be a beautiful woman. While she bore the stamp of anxiety, her color was good and she was well nourished. The X-ray plate was interesting, a shadowgraph of the right renal region was presented, exhibiting a very definite and suggestive angulation of the right ureter coursing upward to the second lumbar vertebra, then bending almost at a right angle over to the kidney.

Spinal anesthesia was effectively used, and no manifestation of pain was apparent until lifting and traction were made on the mass. An incision fully ten inches in length was made through the right rectus, and with meticulous care every bleeding vessel was clamped and ligated. This point of conservation of the patient's blood particularly impressed the observer. As the peritoneum was divided the tumor presented and its surface was one mass and tangle of varicose veins, varying in size from a wheat straw to the size of one's finger. A quantity of sero-sanguinolent fluid escaped. The neoplasm was covered with omentum and the mesentery was tightly adherent. Much time was devoted to the careful separation of these structures and the ligation of vessels. The original incision was crossed to the right to afford a better exposure and approach to the offending, sessile tumor; and this revealed a most difficult situation for the cortical and medullary parts of the gland seemed to have been transformed

into a vascular mass and extended well beneath the crus of the diaphragm. The growth was, after patient and skillful dissection, so mobilized and detached that a safe delivery on to the abdomen was effected.

At this point the patient exhibited pain, and many ampoules of caffein soda benzoate and intravenous salt were used. Little wonder that the lips of the patient looked blanched, as two pails of blood-soaked sponges were removed.

The teamwork was as perfect as one would see at any American operating room, there being two assistants and one dutiful and ever-ready instrument nurse. Three or four men made up the stimulation squad and two orderlies were kept busy.

In this most difficult surgical procedure the technique was matchless, and while I approached the table with a critical eye I saw no act or step throughout but that deserves unstinted praise. This seemed to me an unique case, yet I have had no opportunity of looking up the literature of these tumors of the adrenal glands.

One's curiosity is naturally aroused as to whether the patient withstood so trying an ordeal, and whether, if she lived, the masculinity was supplanted by her quondam feminine grace and beauty.*

Florence.—The city which enshrines the bones of Michael Angelo and Galileo, the tomb of the exiled Dante, where rest at the bottom of the Arno the ashes of Savonarolo; the city which sacredly guards behind glass the original manuscript of Virgil's Aeneid, and priceless first editions of other writers, in beautiful black-letter writing on thick, discolored parchment, chained in the Library of de Medici's.

It was here in the Florentine city the writer was courteously received by Cav. Dott. Giovanni Piccinini and piloted to the Hospital of St. John the Divine, an institution more than three hundred years old. After the formal introductions we were taken to the operating room by Dr. Puccinini, a pupil of Professor Bastianelli. There were six entries on the program:

1. Inguinal Hernia.
2. Acute Obstruction of the Bowel.
3. Carcinoma of Stomach.
4. Carcinoma of Esophagus.
5. Urethrotomy.
6. Cystoscopic Examination.

The operative work by this young professor was done with all of the *tactus eruditus* of the great master whose pupil he was. The hernia case was of the congenital type, and there was no variation from the usual procedure. In the case of acute obstruction of the bowel, the cause was unobserved in the preoperative study. The approach was made through a right gridiron incision, and the cause proved to be a strangulated, femoral hernia, which was liberated from within the abdomen. Spinal anesthesia was used in the first two cases effectively, 5% picric acid for sterilization of the skin. The technique was faultless and the skill of the operator quite equal to our best American surgeons.

Genoa.—There seems to be some controversy as to the part of the Gulf of Genoa from which Christopher Columbus (1435-1506) set sail when he departed for Spain to present his plea before Ferdinand and Isabella. There is no dispute about the place of his birth, and the remnant of an ivy-covered wall is pointed out in Genoa as the place of his nativity. But both the commercial city and its beautiful suburb, Rapallo, some thirty miles distant, have colossal monuments overlooking the Mediterranean, memorials to the great adventurer.

Time forbids more than a passing notice of the new San Martino Hospital of Genoa, founded away back in 1423 and rededicated with its fifty new buildings on its four hundredth anniversary, five years ago. The subjoined illustration of the buildings and grounds gives but an imperfect idea of this largest public general hospital in northern Italy. There are many detached buildings representing the various specialties, and an administration palace that would be fitting for the abode of royalty. The directors' rooms contain many canvases from the brushes of old masters and shelves bearing rare and antique blue-and-white apothecary china of other centuries, such as may be seen in The Majoria Hospital in Milan or in the rich col-

* Since writing this message, a letter has been received from Professor Alessandri, in which he says: "The patient died that afternoon from shock and loss of blood."

lection of Henry S. Wellcome in London. The same extravagant words of praise may be used in describing the operative work and equipment of the San Martino's surgical department as have been used in connection with the Polyclinic in Rome.

While we were inspecting the Italian hospitals, several hundred members of the American colony in Paris were attending the graduating exercises, last week, of fourteen student nurses of the training school of the American Hospital. Ambassador Myron T. Herrick presented the diplomas, and that interesting figure in the medical life of France's capital, Dr. Edmund L. Gros, presided. A feature of the program, held on the American Hospital's roof-garden, was music given by seven negro bands, now playing in Paris. Representatives of every American activity in Paris were present at these exercises.

In a previous letter to the Journal I endeavored to describe this very much appreciated medical center, which has brought joy and relief to many of the unfortunates of our country.

The nurses who may chance to read this letter will be interested to know that in Sweden the course of study covers four years. The last year is spent in the University, where they receive lectures and practical demonstrations with the students of medicine, in the higher branches, including the complete dissection of the human body. This information comes from a nurse from Sweden aboard our ship.

On the new steamer, the *Conte Grande* of the Lloyd Sabanda line, we have a crew of 550, with upward of 1,500 passengers. On board there is a hospital with 70 beds equally divided between the men and the women. There is an isolation department and padded cells for the insane. There is a law in the United States which requires the deportation of any case of insanity developing in an immigrant within five years after his landing. The ship surgeon informs me that there are always several cases on the outgoing trip from New York. There are 69 provinces in Italy, and each province has an insane institution where these unfortunates are comfortably provided for.

Some apology should be made to the readers of our Journal for this hurriedly written scroll. Penned at sea on a vibrating steamer, developing 500 knots a day, where serious thinking is almost out of the question and where one's effort looks more like the writing of one afflicted with the Parkinsonian syndrome than the legible hand of a normal individual, by chance, paroxysmally a sufferer with *mal de mer*.

A Merited Tribute

On October 3, 1928, a large and representative crowd assembled in the Tygart Hotel at Elkins to observe the twenty-fifth anniversary of the Davis Memorial Hospital, and its superintendent, Dr. W. W. Golden, who has been in charge during all these years.

At 6:30 o'clock about 125 citizens were present and partook of a bountiful supper, after which Dr. James E. Allen, president of Davis and Elkins College, acting as toastmaster, called upon several present to give utterance to what was the universal opinion of the great work which has been accomplished under the supervision of Dr. Golden. Those called upon were Senator C. H. Scott, Captain W. H. Cobb, Mayor G. W. Wilson, Dr. J. C. Irons of Horton, H. G. Kump, and R. Darden, all of whom lauded the work done at Davis Memorial Hospital and gave the meed of praise to Dr. Golden as the pioneer in hospital work in this section. Dr. Golden was also praised for his untiring effort and success which raised the standing of the hospital to its present position of highest standing. Senator H. G. Davis and wife were most highly praised for their great thoughtfulness in erecting such an institution where it was so greatly needed.

Dr. Golden was then called upon to say something in response. He was so overwhelmed on the occasion that utterance was difficult. He expressed himself as highly gratified by the general approval of his work, but said he felt that most of the praise was due to the donors of the hospital, and their children who are still carrying forward the work so nobly started by their parents.

Dr. Golden then related his experiences in surgical cases which he attended before

Elkins had any hospital, comparing the present with the past. Elkins and the community have reason to be congratulated for her hospital facilities, where surgical and medical attention can be rendered without the need of a long trip to older and larger cities, at a distance, for hospital attention.

J. C. IRONS.

Rabbits Dangerous

The prevalence of tularemia among wild rabbits makes their introduction from foreign districts to build up depleted game supplies particularly dangerous both to animals and man, the Biological Survey of the Department of Agriculture recently stated. Proper conservation of wild rabbits is recommended by the Survey as opposed to introduction.

The statement follows in full text:

The danger of introducing wild rabbits from other states in an effort to build up the depleted supply of game, rather than allowing the native stock to recruit its ranks by the help of proper conservation methods, is forcibly illustrated by recent developments in Massachusetts, where prompt action by the state department of conservation resulted in the detection of tularemia in a shipment of cottontails from the West, and their total destruction. By this salutary action the introduction of this disease into New England was averted and a lesson emphasized that is of vital importance to all individuals and organizations in any way interested in our native fauna.—*U. S. Daily*.

The Oldest Library

The first public library to exist in Europe, we are reliably informed by Colonel G. F. Young, was founded by Cosimo Medici in 1444 at Florence, Italy. Some thirty years later the Vatican Library was founded in Rome and modeled after the Florentine collection.

At first this invaluable selection of works was housed in the home of the Medici family, but its growth and increasing value made it necessary, in succeeding generations, to construct a special building, in which these treasures are now located, in the cloister of San Lorenzo. The building was designed by

Michael Angelo in 1524. Among the rare old tomes assembled here are the original copy of the Roman law, known as the Pandects of Justinian (A. D. 533), a book which has influenced the civilization of all Europe; Cicero's Letters; the sole existing copy of the first five books of Tacitus; an ancient copy of Sophocles; an important manuscript of Aeschylus; an old treatise on surgery in Greek; the commentaries of Julius Cæsar; a fourth century Virgil; a Pliny of the tenth century, and valuable treasures belonging to Dante and Petrarch.

These splendid tributes of learning, representing vast sums of money and numbering upwards of ten thousand volumes, should be seen by every medical visitor to Florence.

F. L. H.

Medical Center

The project of a medical university center, started eighteen years ago by such well-known figures as Dr. Samuel Lambert, Dr. Joseph A. Blake and Dr. Theodore Janeway, is now nearing completion. The Medical Center, New York, was dedicated to the service of humanity and the progress of science on October 12th before many thousands of invited guests. During the spring and summer there have been a succession of removals and openings at the Medical Center. This ceremony marked the beginning of the united efforts as a teaching and research combination. Following the dedicatory services, inspection of the College of Physicians and Surgeons, the Vanderbilt Clinic, and the School of Dental and Oral Surgery was made. Visitors were not admitted to the Babies' Hospital, the Neurological Institute, or the New York State Psychiatric Institute and Hospital, as they are still in the hands of the builder. January first is the tentative date made for the occupancy of these buildings.

Studies of Vision

The United States Public Health Service has recently announced the results of studies conducted of vision of school children. Nearly 2,000 children were carefully examined by a physician specially trained in defects and dis-

eases of the eye. These children were not a selected group and, therefore, the results may well be considered as representing conditions in the general school population of the country.

The number of children in the group studied who actually needed glasses for school work was 45 per cent of those examined. The Surgeon General emphasizes the importance of making visual tests of school children at least twice a year, because near-sightedness may progress rapidly within a year. The nearsighted eye may practically always be discovered by the use of the simple Snellen chart. Far-sightedness is not always discovered with this test.

These studies show that while 60 per cent of the children may read normally on the vision test chart, 32 per cent of these are definitely farsighted and are constantly straining the eyes in near work. This was shown by using "drops" in the eye which temporarily removed the power of optical adjustment. The fact that the eyes of children should always be examined by a physician who is an eye specialist and is competent to make a thorough examination is also pointed out. If a thorough examination had been made of the vision and proper steps taken for the correction of defects instead of waiting for symptoms to develop, it is probable that many persons who are wearing glasses today would not have to do so.

Country Doctors

The "country doctor" is becoming rare, and were it not for modern means of communication and travel rural districts would suffer from the lack of medical treatment, according to a statement made public on September 25 by the Department of the Interior, based upon a recent survey conducted by the Bureau of Education, Department of Interior. The statement in full text follows:

The United States has more physicians in proportion to its population than any other country. According to the latest figures available, there is one physician to every 753 people in the United States, while in Great Britain there is one physician to every 1,087,

in Switzerland Japan, respectively, one to every 1,290 and 1,359, in Germany one to every 1,940, in Austria one to every 2,120, and in Sweden one to every 3,500. These facts are revealed by a study made by the Federal Bureau of Education.

In the United States, as in other countries, there has been a tendency during recent years for physicians to locate in cities rather than in rural districts. The old country doctor is becoming rare, and if it were not for the greatly improved means of communication and travel—the telephone, interurban cars, and the automobile—rural districts would suffer from the lack of medical treatment. Under modern conditions, however, physicians from towns and cities can furnish medical care for much larger areas than formerly.

The complaints heard are not so much as to lack of medical service, but as to the increased charges for the physician's services because of the greater distance he has to travel. Country life associations and others interested in rural communities are studying this problem, with some prospect of improvement. The consolidation of country schools is establishing centers where, in addition to the schoolhouse, small hospitals or health centers may be placed where medical service can be obtained in case of emergency.—*U. S. Daily.*

Lepers Are Released

The Public Health Service has recently authorized the probational release of eight lepers from the national leprosarium at Carville, La., as no longer a menace to the public health. These eight lepers have been under treatment at the national leper home for varying lengths of time, ranging from two to seven years.

The national leprosarium at Carville, La., has been operated by the U. S. Public Health Service for a little more than seven years. During that time 37 lepers have been released or paroled as being no longer dangerous to the public health. Only one of these lepers has suffered a relapse and has had to resume treatment. More than 300 lepers are now under treatment at this institution.

SEPTEMBER MORBIDITY REPORT

	Chickenpox	Diphtheria	Influenza	Measles	Meningitis Cer. Spi.	Poliomyelitis	Scarlet Fever	Smallpox	Tuberculosis All forms	Typhoid Fever	Whooping Cough
Barbour.....	---	---	---	---	---	3	---	---	---	1	---
Berkeley.....	---	2	---	1	---	---	1	---	---	8	---
Boone.....	---	2	---	1	---	---	13	---	---	14	---
Braxton.....	---	1	---	---	---	---	1	3	---	---	---
Brooke.....	---	1	---	2	---	---	---	---	1	3	---
Cabell.....	---	10	---	---	---	---	9	---	---	5	---
Clay.....	---	---	---	---	---	---	---	---	---	1	---
Doddridge.....	---	---	---	---	---	---	2	---	---	---	1
Fayette.....	---	---	---	---	---	---	---	---	---	1	---
Gilmer.....	---	---	---	---	---	1	---	---	1	1	---
Greenbrier.....	---	---	---	---	---	---	4	---	---	---	---
Hampshire.....	---	---	---	---	---	1	---	---	---	---	---
Hancock.....	---	---	---	---	---	---	3	---	---	2	---
Hardy.....	---	---	---	---	---	---	---	---	---	2	---
Harrison.....	2	1	---	2	1	4	7	---	---	3	5
Jefferson.....	---	---	---	---	---	---	1	---	---	1	5
Kanawha.....	---	13	---	12	---	2	23	---	19	29	1
Logan.....	---	2	---	---	---	---	16	---	---	4	---
Marion.....	---	1	---	---	---	3	7	---	---	7	---
Marshall.....	---	---	---	---	---	1	---	---	---	---	---
Mason.....	---	---	8	---	---	---	---	---	---	2	---
Mercer.....	---	3	---	2	---	---	4	---	---	11	---
Mineral.....	---	3	24	---	---	10	2	---	13	3	4
Mingo.....	1	2	---	---	---	---	15	---	3	1	---
Monongalia.....	2	---	---	---	---	6	4	---	---	2	---
Morgan.....	---	---	---	---	---	---	---	---	2	1	---
Nicholas.....	---	2	---	---	---	---	4	---	---	2	---
Ohio.....	---	---	3	3	---	1	3	---	10	1	1
Pocahontas.....	---	7	---	---	---	2	4	---	---	4	---
Preston.....	---	---	---	---	---	8	1	---	---	7	---
Raleigh.....	---	1	---	---	---	1	4	---	1	---	---
Randolph.....	---	1	---	---	---	2	2	---	---	1	---
Roane.....	---	---	---	---	---	---	1	---	---	4	---
Summers.....	---	---	---	---	---	---	5	---	---	6	---
Tucker.....	---	---	---	---	---	2	---	---	---	1	---
Tyler.....	3	---	20	---	---	---	---	---	2	---	---
Webster.....	---	1	---	---	---	---	---	---	---	---	---
Wetzel.....	---	---	1	---	---	1	5	---	---	---	16
Wood.....	1	1	3	---	---	---	1	1	---	---	1
Wyoming.....	---	---	7	---	---	---	2	---	1	2	---
TOTALS.....	9	54	66	23	1	48	144	4	53	130	34

WOMAN'S AUXILIARY

Hygeia Prize Offered

The following interesting letter in regard to the magazine *Hygeia* was recently received by Mrs. R. V. Shanklin of Gary, president of the state auxiliary, from Mrs. A. B. McGlothlan, national *Hygeia* chairman:

"Mrs. Allen H. Bunce, the new president of the Women's Auxiliary of the American Medical Association, has asked me to again be your chairman of *Hygeia*.

"You have no doubt heard of the prize that has been offered for *Hygeia* subscriptions this year. Mrs. McReynolds has secured from a friend of hers, whose name is withheld, a prize of a small automobile or a trip to Europe which will be awarded to the State Auxiliary which first sends in one thousand subscriptions (reduced to an annual basis), beginning September 1, 1928. (Subscriptions sent in before September 1 will not be counted in the one thousand.) After this prize is awarded to a State Auxiliary, that Auxiliary will in turn award it to its individual member which sends in the largest number of subscriptions within ninety days.

"The Missouri Auxiliary won the one hundred dollar prize offered by Mrs. McReynolds for the largest number of subscriptions sent in by a State Auxiliary between May 1, 1927, and May 1, 1928, and Cass County, Missouri, won the fifty-dollar prize for the largest number of subscriptions per capita paid-up membership.

"Interest manifested by this year's offer indicates that competition for this prize will be stiff, and that, if a state hopes to win, its president and *Hygeia* chairmen will have to put forth their best efforts.

"Last year we worked out with the circulation manager plans for the extension of *Hygeia* circulation that have as yet not been fully carried out by any state. Therefore, I am referring you to Mr. F. J. Cargill, 535 North Dearborn St., Chicago, Ill., for a copy

of these plans and for new plans for this year. Ask him also for group rates, as each year he makes a uniform group rate for Auxiliaries.

"I am sending a copy of this letter to the enclosed names, which are all that my records show to be working on *Hygeia* in your state. A complete list of your county presidents and *Hygeia* chairmen, as well as the name of your present state chairman of *Hygeia*, would aid me in carrying on my work, and should be forwarded to me at once by the state president.

"I am counting on you to help make this the best year we have ever had for *Hygeia*."

Oversight

Through an oversight, the article which appeared last month was not attributed to its proper source. It was taken from an issue of the National bulletin which was given over to the State Auxiliary for that number.

Monongalia Auxiliary

The Morgantown Auxiliary started the year with a luncheon at the Country Club, with Mrs. Talbott as hostess. This Auxiliary has given a \$135 electric warming cabinet to the nursery at the hospital and the members plan to buy battleship linoleum for it.

Kanawha Auxiliary

The Kanawha Auxiliary will start the year with a Hallowe'en party at the home of Mrs. E. B. Henson on October 23.

Southern Medical

Let us remember the meeting of the Southern Medical Association in Asheville, November 12th to 15th. Our Auxiliary is a member of this Association and will be represented there by Mrs. Shanklin, our president, and Mrs. Preston, past-president.

The West Virginia Medical Journal

Directed and Edited by the Committee on Publication

[The Committee on Publication is not responsible for the authenticity of opinion or statements made by authors or in communications submitted to this Journal for publication. The author or communicant shall be held entirely responsible]

JAMES R. BLOSS, *Editor-in-Chief* - - - - - Huntington

ASSOCIATE EDITORS:

WALTER E. VEST
Huntington

HARRY M. HALL
Wheeling

J. HOWARD ANDERSON
Marytown

C. A. RAY
Charleston

MR. JOE W. SAVAGE, *Secretary-Business Manager*, Charleston

Entered as Second Class Matter, January 1, 1926, at the Postoffice at Charleston, West Virginia

Vol. XXIV

DECEMBER, 1928

No. 12

FACTORS IN THE TREATMENT OF SURGICAL LESIONS OF THE KIDNEY, BLADDER, AND PROSTATE GLAND*

By VERNE C. HUNT, M.D.

*Division of Surgery, The Mayo Clinic
Rochester, Minnesota*

THE problems in the treatment of surgical lesions of the urinary tract interest not only the surgeon who applies the therapeutic principles of his art but the urologist whose employment of diagnostic methods, made possible by cystoscopy and its allied methods of examination, has caused the diagnosis of the surgical lesions of the urinary tract to attain a high state of accuracy. The interest of the internist is indispensable in the pre-operative consideration of patients and in the postoperative management of complications and associated conditions. The pathologist has contributed much to a better understanding of disease, and in recent years has made valuable contributions to the pathology of malignant disease, particularly with regard to the relationship existing between certain microscopic characteristics of malignant tumors and prognosis or longevity. The prob-

lems in the treatment of surgical lesions of the urinary tract are numerous, and since many of them in the past have been solved by the coordinated efforts of the pathologist, internist, urologist, and surgeon, it is hoped that progress may continue through such co-ordination of effort.

Mortality and ultimate results form the criteria by which the merits of therapeutic measures are established. Not all patients, unfortunately, survive skillful surgical procedures conducted after most painstaking preoperative consideration, chiefly on account of pre-existing or co-existing organic disease. This is particularly true of obstructing lesions of the urinary tract. Nor do all patients following skillful surgical procedures experience equally good results, usually for the same reasons. The question often arises regarding justifiable risk and justifiable magnitude of certain surgical procedures, and much inaccuracy still persists in prognosti-

* Read before the Central Tri-State Medical Society, Huntington, West Virginia, September 20, 1928.

cating the ultimate results. Tests of renal function have withstood the test of time and have proved their value. Experience has shown, however, that tests of renal function are relative and do not necessarily indicate total renal function or provide a method of determining the maximal capacity of the kidneys under stress. It is significant that reliance should not be placed entirely on tests of renal function to the exclusion of clinical manifestations of disease.

Intra-abdominal disease and disturbances in the urinary tract may be productive of indefinite and atypical symptoms leading to confusion in diagnosis; sometimes, because of the site, character and reference of pain, acute seizures from gallstones and from renal and ureteral stones may be clinically indistinguishable. The frequency with which the appendix and often the gallbladder are removed for symptoms produced by ureteral or renal lithiasis emphasizes the necessity of urologic investigation if there is doubt regarding the accuracy of the diagnosis. Differential diagnosis of many abdominal tumors is incomplete without pyelographic interpretation of the intrarenal or extrarenal involvement. Roentgenographic shadows in the region of the urinary tract and the presence grossly or microscopically of erythrocytes and pus in the urine should establish the necessity for thorough and competent urologic examination. The interpretation of urologic observations has become so accurate and reliable that diagnostic exploration of any part of the urinary tract is rarely necessary. The importance, therefore, of dependable urologic diagnosis of the surgical lesions of the urinary tract is obvious. When the diagnosis is once established, many problems in management present themselves. Surgical principles have been quite uniformly established for lesions of the kidney, but there is a divergence of opinion with regard to methods of managing lesions of the bladder. I shall not discuss here details of management, but simply emphasize in a general way certain factors of importance.

LESIONS OF THE KIDNEY

Lithiasis is the most common surgical lesion encountered in the kidney, comprising 808 (49.2 per cent) of 1,640 major surgical

lesions of the kidney operated on at The Mayo Clinic from 1922 to 1927, inclusive. Single stones confined to the renal pelvis present few difficulties from a surgical standpoint. Braasch, however, has presented data showing that stones in the kidney are multiple in more than 40 per cent of cases, and that in approximately 10 per cent they are bilateral. Single stones are usually situated in the pelvis and are readily accessible by pelviolithotomy; multiple stones may be confined entirely to the pelvis, but usually occupy calices. The method of management of bilateral renal lithiasis is sometimes questionable. Bilateral operation is not always advisable or necessary. In many instances, the stone in one kidney is small and, if given an opportunity, may pass spontaneously. Certainly, in the absence of symptoms referable to a small stone, when indications are clear for operation on the other kidney, time and opportunity should be given for the passage of the single small stone before bilateral operation is performed. In cases in which bilateral operation is necessary, experience has shown that, except under unusual circumstances, it is not advisable to operate on both kidneys simultaneously. The kidney to which acute symptoms are referable should be operated on first. In the absence of acute symptoms, but with distinct evidence of a difference in the amount of renal injury incurred by the presence of stones, it has seemed best to operate first on the kidney with the better function in order to take advantage of the function remaining in the poorer kidney after the operation.

The kidney is often seriously injured by the presence of stones and infection. If stones remain in the kidney for a long time there will be progressive injury to the organ and its function by mechanical means and infection. Stones may be "silent" so far as symptoms are concerned, but not actually or even potentially inactive, so far as their ultimate effect on the kidney is concerned. This is well illustrated by the high percentage of cases in my series (35.5 per cent) in which nephrectomy was necessary for lithiasis and associated infection. If the kidney is functionless as the result of lithiasis and associated infection the indications for nephrectomy are clear. Conservatism should be

encouraged in cases of large single stones when there is little if any reduction of function even though there is moderate infection. In cases of large, branched stones, the question of conservatism or nephrectomy is often difficult to settle. In the presence of adequate renal function, the conservative operation is the one of choice if the stone can be removed with a minimal amount of mutilation. Frequently, however, a branched stone is a cast of the renal pelvis and calices, and it can not be removed without breaking it into fragments, many of which will be incompletely removed without irreparable trauma of the kidney.

Pelviolithotomy is the conservative operation of choice. When conservatism could be employed in our series, the stones were removed in this manner in 85 per cent of the cases. Nephrolithotomy or transcortical removal of stones in calices inaccessible by pelviotomy was necessary in only 15 per cent of these cases.

Through the persistence of pre-existing foci of infection and other indeterminate factors associated with formation of calculi it is possible for stones to reform. There are so-called stone-forming kidneys in which calculi continue to develop even after all demonstrable foci of infection have been eliminated. *Proteus ammoniæ*, which Hager and Magath determined as the organism responsible in several cases of recurrent stones of the bladder, has been isolated in several cases of recurrent stones of the kidney and occasionally is unquestionably a factor in reformation or recurrence of renal stones. True reformation of stones, however, occurs rather infrequently, and experience has shown that in most cases recurrence has in reality been the persistence of stones overlooked at the time of operation or of particles incompletely removed, which serve as nuclei for subsequent stones. The surgeon's difficulty in locating and removing all multiple stones, and his occasional failure to remove all stones as depicted by early postoperative roentgenograms, emphasized the need of aid in the localization of shadows at operation. Braasch and Carman, employing the principle of localization of foreign bodies in tissues at the operating table, devised a method of fluoro-

scopic examination with the kidney elevated out of the wound. The method has proved invaluable in detection of even small particles of stony material which otherwise could not have been found, and has afforded reasonable assurance of complete removal of all stones before the conclusion of the operation with marked reduction in the incidence of the formerly so-called recurrence of lithiasis. Quimby has advocated the making and developing of films at operation as an aid in the localization of stones and for the assurance of complete removal of all stones. These methods have attained such importance in surgical procedures in renal lithiasis that to insure the best results it is doubtful whether one is justified in contemplating pelviolithotomy without fluoroscopic aid or facilities for the rapid development of films at operation.

NEPHRECTOMY

Nephrectomy, in my experience, has been necessary in 68 per cent of lesions of the kidney. Infection of the kidney, independent of lithiasis, has constituted 57 per cent of lesions of the kidney for which nephrectomy has been necessary. The infection may be considered as tuberculous and nontuberculous; the incidence of each has been about equal. The nontuberculous types are pyonephrosis, pyelonephritis and infected hydronephrotic kidneys. A relatively high incidence of accessory blood vessels to the lower pole of the kidney has been responsible for the production of hydronephrosis. Frequently the degree of hydronephrosis is so great and the infection so extensive that nothing short of nephrectomy is worthy of consideration; however, in a small percentage of cases the reduction of function is so slight and the parenchyma of the kidney so little affected that plastic operation, in addition to division and ligation of the accessory vessels, may be attempted. Quimby has reported a number of such plastic operations successfully accomplished. It would seem that with the existence of accessory vessels to the lower pole, producing obstruction at the ureteropelvic juncture, their simple division and ligation would suffice; however, experience has shown such simple procedures to be ineffectual.

It may be stated that the clinical recognition of renal tuberculosis has reached a

high state of accuracy, and that infection of the kidney is usually readily detected early. Although heliotherapy and nonsurgical methods of treatment have been advocated, and unquestionably possess some merit, the cure of unilateral renal tuberculosis is usually not accomplished except by nephrectomy. Reservations placed on cure are dependent on the extent of renal involvement, the presence of tuberculous cystitis, or the activity of tuberculous lesions elsewhere. In approximately 80 per cent of the surgical cases of renal tuberculosis, tuberculous lesions elsewhere are associated; the latter, however, in the absence of general contraindications, should not necessarily deprive the patient of the benefit to be obtained from removal of the major tuberculous lesion if it is in one kidney. Diffuse miliary tuberculosis is considered a contraindication to nephrectomy. The low mortality rate of less than 2 per cent after nephrectomy for unilateral renal tuberculosis justifies the operation even if there is moderate pulmonary involvement.

Indolent healing of the wound and a temporarily persisting sinus may follow nephrectomy for renal tuberculosis. This is usually due to incomplete removal of diseased tissue, persisting infection in the ureter, and the institution of drainage. The perirenal fat is often involved in extensive tuberculous pyonephrosis, particularly if perinephritic abscess has resulted and its incomplete removal retards healing. The ureter is usually thickened and dilated, and, if not actually tuberculous, presents definite ureteritis, which in many instances results in a persisting sinus. The insertion of drainage tubes after nephrectomy for renal tuberculosis is not advisable, for it invites secondary infection with sinuses and indolent healing of the wound. Closure of nephrectomy wounds without drainage results in primary healing in a high percentage of cases.

Renal infection, hematogenous in origin, is also of unusual interest; it results in cortical abscesses which frequently terminate in perinephritic abscess. A definite relationship has been shown between superficial infections of the skin, such as boils, carbuncles, and so forth, and subsequent cortical abscesses in the kidney. Cases of perinephritic abscess in

the absence of primary disease of the kidney and in which lymphatic metastasis can be excluded is nearly always due to a preceding superficial infection of the skin which may have entirely subsided before manifestations of renal or perirenal infection appear. Several years ago I reported fifty-nine cases of perinephritic abscess, hematogenous in origin, in which the relationship between pre-existing superficial or remote infection and perinephritic abscess was definitely established. In only five cases was the kidney so badly diseased as to require nephrectomy.

The malignant lesions of the kidney comprise hypernephroma, carcinoma, epithelioma of the pelvis, and sarcoma. These lesions sometimes become very large and for this reason may be considered inoperable. Experience has shown, however, that there is often less tendency to direct extension from a large hypernephroma than from a small one, and operability should be considered if the tumor is at all mobile. The anterior transperitoneal route facilitates removal of large tumors entirely inaccessible through the regular posterior incision. Since most malignant lesions of the kidney progress by direct extension with invasion often of the renal vein and with remote metastasis, particularly in cases of hypernephroma and carcinoma, the results of nephrectomy for malignant lesions are dependent on early diagnosis and operation. It is important in performing nephrectomy for malignant disease to remove all perirenal fat in order to minimize the danger of local recurrence.

Primary papillary epithelioma of the renal pelvis deserves particular consideration for it is entirely unlike other types of malignant lesions of the kidney in its method of extension. Epithelioma of the renal pelvis is encountered as one of two distinct types: the flat squamous cell, or the papillary. The former is usually highly malignant and progresses by direct extension into the parenchyma of the kidney and extracapsular structures, and tends to metastasize remotely, like hypernephroma and carcinoma. The papillary form of epithelioma, however, is the least malignant of renal neoplasms; it progresses slowly by direct extension along the mucous membrane of the pelvis to the calices and

along the ureter to the bladder, and does not tend to metastasize remotely. Because of these characteristics the surgical principles involved in these cases differ from those of nephrectomy for all forms of malignant lesions of the kidney. Although papillary epithelioma of the renal pelvis is the least malignant lesion of the kidney, failure to distinguish it from the sessile type of epithelioma allows the malignancy to increase, not in degree, but through subsequent recurrence in the ureter and bladder if it is treated only by nephrectomy. In a review of the cases of papillary epithelioma of the renal pelvis observed at The Mayo Clinic it was found that in two-thirds the bladder was involved at the time of the primary examination, or it became involved subsequent to nephrectomy or nephrectomy and partial ureterectomy. The revelation of the high incidence of metastasis to the portion of bladder immediately surrounding the ureteral orifice, or immediately adjacent to it, emphasizes the necessity of not only removing the ureter and the kidney but of segmental resection of that portion of the bladder including the intramural portion of the ureter and the adjacent area simultaneous with nephro-ureterectomy. The combined operation has been performed on a number of patients since this observation was made. It is readily accomplished with little more time and risk than simple nephrectomy, and offers added assurance against recurrence.

MALIGNANT DISEASE OF THE BLADDER

Many of the surgical lesions of the lower part of the urinary tract are worthy of discussion, but I shall confine myself to a general consideration of malignant disease of the bladder and benign prostatic hypertrophy which comprise at least the most commonly encountered surgical lesions. Principles have been established on which it has been possible to standardize methods of treating most surgical lesions of the upper part of the urinary tract, but as yet there is little uniformity in the treatment of malignant lesions of the bladder.

Operation, irradiation, electrocoagulation, and so forth, have all been employed long enough, so that a comparison of results from the respective methods should lead to some

uniformity of opinion regarding treatment. The difference in opinion, apparently, is due to lack of unity in the pathologic classification of malignant tumors, to lack of recognition of the degrees of malignancy, and to lack of consideration of the site and extent of the lesion, all of which are most important in determining the best treatment and in ascertaining results.

In my experience 95 per cent of the lesions of the bladder have been epitheliomas. These lesions differ materially in the degree of malignancy, according to Broders' index, in which cellular differentiation serves as a basis in determining degrees of malignancy. A series of 480 epitheliomas of the bladder, irrespective of the site, observed at The Mayo Clinic, were graded by Broders. Ten per cent were graded 1 (least malignant), 32 per cent were graded 2, 35 per cent were graded 3, and 23 per cent were graded 4. More than half of the tumors were highly malignant (graded 3 and 4). It has been shown in a previous report, however, that when the site of the tumor is taken into consideration there is a tendency to development of a larger percentage of more highly malignant lesions in the base of the bladder than in the dome and lateral walls. The extent of disease is most significant, and must be considered in the choice of a therapeutic procedure. Lesions graded 1 or 2 are usually confined to mucous membrane, and lesions graded 3 or 4 usually are infiltrating, often with extravesical extension. This is particularly true of highly malignant lesions of the base of the bladder, and these tend to inoperability.

There are certain small, single or multiple low-grade malignant lesions amenable to transurethral electrocoagulation. The lesions that are not amenable to such methods of treatment present the greatest problem because of the high degree of malignancy, the extensive involvement, and the site. Tumors of the bladder may be classified according to situation, into two groups: those confined to the lateral walls and dome, and those confined to the base with involvement of one or both ureters or of the internal urethral orifice. It is essential to recognize these two groups, for there is a difference in the degree of malignancy and in accessibility which influences the

magnitude of the surgical procedure and the ultimate results. I believe that the relative merit of the various methods of treating malignant lesions of the bladder that have been advocated may be ascertained in the future only when the results of treatment are analyzed in terms of the relative degree of malignancy and of the situation and extent of involvement. From present knowledge of the results of the various methods of treatment, including physical agents, it must be concluded that an operable malignant lesion of the bladder is most successfully dealt with surgically. Difference of opinion may exist regarding operability. Most tumors of the dome, lateral and posterior walls are operable and may be removed by segmental resection or some method of excision. Highly malignant tumors of the base of the bladder with extensive involvement and infiltration are usually inoperable. Curative surgical procedures for malignant disease possess a justifiable risk; however, the risk should never exceed the relative prospect of cure. The pre-operative knowledge of the grade of malignancy as ascertained from a specimen removed through the cystoscope furnishes an excellent guide to the justifiable magnitude of the contemplated operation. Obviously the prospects of cure by necessarily extensive surgical removal of a lesion of low-grade malignancy are much greater than one of high-grade malignancy in the same situation with a similar degree of involvement, thereby justifying operations of greater magnitude and risk than for lesions of a high degree of malignancy.

Since most tumors of the dome and lateral walls of the bladder are operable, they may be best removed by segmental resection of the bladder or some type of excision. Tumors in this situation, because of accessibility and relatively low degree of malignancy, offer the most hopeful prognosis, and with earlier recognition and application of approved surgical measures the results should in the future show continued improvement.

Operations, curative in purpose, for tumors of the base of the bladder necessarily include disposition of the ureter. One or both ureters may be involved, if not actually in the lesion, in the surgical procedure necessary to eradi-

cate the lesion. The ureter, and in turn the kidneys, increase the danger of radical operations for malignant lesions in this situation, and the surgical principles involved are those concerned with disposition of the ureter. Total cystectomy for extensive operable lesions in this situation has been recommended. The mortality rate, however, incident to the care of the ureters, has been such that total cystectomy is, as yet, hardly a practical procedure.

In cases of malignant disease of the base of the bladder, in which one ureter is involved, occluded, or encroached on in resection, it is necessary to divide the ureter and dispose of it either by ligation, placing entire reliance for total renal function on the remaining kidney, or by reimplantation into the remaining portion of the bladder.

Recently I reported a series of ninety-nine cases of segmental resection of the bladder for tumors of the base with ligation or reimplantation of the ureter. In fifty-two cases the ureter was disposed of by ligation; there were seven postoperative deaths, a mortality rate of 13.4 per cent. Nephrectomy for an infected hydronephrotic kidney was necessary in two cases. In forty-seven cases the ureter was disposed of by reimplantation; there were fifteen deaths, a mortality rate of 32 per cent. Ascending infection was the cause of death in each instance. The marked difference in mortality rate for an equally extensive resection, differing only in the disposition of the ureter, even though nephrectomy was necessary in two cases, convinces me that the ureter should be ligated rather than reimplanted.

Suprapubic transvesical electrocoagulation has been used in treating certain tumors of the bladder. Beer, Corbus and others have been instrumental in perfecting the method so that it is effective and relatively safe. At The Mayo Clinic its use has been confined largely to extensive infiltrating lesions of the base, not resectable and usually inoperable, at least so far as the application of strictly surgical principles is concerned. Electrocoagulation has also been used in conjunction with various types of excision. Results in cases of extensive malignant tumors have recently been reported from the clinic, and

while they do not as yet represent end results, they are such as to warrant continued use of the method in cases that can not be more hopefully treated by strictly surgical procedures.

BENIGN HYPERTROPHY OF PROSTATE GLAND

The recognition of the fact that the patient with prostatic obstruction is primarily a medical patient is of utmost importance. Even though a surgical condition is present, it should not be regarded as of interest only to the urologist in terms of disease of the urinary tract, or to the surgeon who may view it entirely from the standpoint of a surgical lesion. The patient, because of the age at which prostatic obstruction occurs, often has an associated disease incident to his age, particularly cardiovascular disease, which may be best understood by the clinician.

It would seem that the patient who has continued to work and who, on examination, is in good physical condition with a satisfactory cardiovascular system and with little, if any, demonstrable renal injury resulting from a moderate degree of obstruction and urinary retention, would not experience any particular hazard in immediate operation. This, however, is not the case. Some time ago in a review of the relationship between preliminary treatment to the mortality rate of prostatectomy I presented data showing that in relatively preferred surgical risks, if operation was performed without preoperative treatment, the mortality rate approached very nearly that of prostatectomy in patients in poor general condition with marked renal insufficiency, infection of the urinary tract, and distinct cardiovascular disease, when operated on only after adequate preoperative treatment. The merit of preliminary treatment in all cases has been definitely established, and it may be stated that prostatectomy should never be contemplated without a period of preoperative treatment. Drainage of the bladder is of most importance, and unless there are good reasons for cystostomy, should be established by a permanent indwelling urethral catheter. This method of instituting drainage is the one of choice, for it facilitates the one-stage visualized operation which has much to commend it over the two-stage operation. The latter operation I

regard as one of necessity on account of associated lesions, coexisting organic disease, and complications requiring preliminary suprapubic drainage. This method of drainage has been found advisable if large or multiple small stones and severe cystitis are associated, and in cases in which diverticula are associated with prostatic hypertrophy; in my experience this has occurred in 5 to 7 per cent of the cases. When diverticula are associated, they usually are removed as the first stage, thus allowing prostatectomy to be performed several weeks later. It has not been advisable, in most cases, to extirpate diverticula and the prostate simultaneously. Intolerance to the urethral catheter occasionally requires suprapubic cystostomy as a method of drainage preliminary to prostatectomy. I have reported elsewhere the influence of age on mortality in prostatectomy. Because of the lack of physical fortitude in the aged, the divided operation is advisable, accepting the disadvantages of the operation in favor of safety in advanced age or senility, when there is a narrow margin of organic reserve. The disadvantages, however, of inaccurate prostatectomy subsequent to preliminary cystostomy, in my opinion, make the divided operation unwarranted for patients in good general condition, in comparison to drainage by urethral catheter and one-stage visualized prostatectomy. Careful clinical and urologic supervision during the period of drainage accomplish much in combating infection of the urinary tract and improving the general condition of the patient.

The length of time that preliminary treatment is necessary before prostatectomy may be undertaken with a maximal degree of safety depends on the general condition of the patient and the degree of renal insufficiency incident to the obstruction. In The Mayo Clinic we have established a minimum of ten days for patients in good condition; however, this period lengthens in proportion to the degree of depletion of the cardiovascular-renal reserve and the rapidity with which restoration of reserve occurs. Without entering into a consideration of the value and relative merits of tests of renal function, it should be stated that they are indispensable as aids in the determination of the time at

which operation may be undertaken with a fair degree of safety. As a general rule it has not been advisable to consider prostatectomy except under unusual circumstances with a phenolsulphonephthalein return of less than 20 per cent, or with the blood urea above 50 mg. for each 100 c.c.

Certain limitations should be placed on the performance of prostatectomy. In view of the relatively high mortality rate, if patients are more than eighty the advisability of performing prostatectomy on them should be carefully considered. Palliation is obtained readily by simple suprapubic cystostomy, and although restoration of the urethral channel may be highly desired by the patient, a greater assurance of prolongation of life with minimal risk may be provided by suprapubic drainage than by prostatectomy. Palliation by cystostomy is sometimes necessary also for younger patients whose kidneys, as a result of long-continued urinary obstruction, have been irreparably injured. Malignant hypertension and cardiac decompensation are distinct contraindications to prostatectomy.

I prefer the one-stage suprapubic prostatectomy, which may be employed in 75 per cent of carefully selected cases, since I believe that visualization of the field of operation adds safety through accurate hemostasis and provides opportunity to remove the gland completely, leaving a smooth prostatic capsule and clean-cut circumference of the neck of the bladder, which is productive of better functional results than the two-stage operation. Hemostatic sutures at the neck of the bladder and the use of the Pilcher bag in the prostatic capsule have proved most effective.

Improper preliminary cystostomy may endanger the peritoneum for subsequent prostatectomy. The greatest hazard in the second-stage operation is the accidental opening of the peritoneum. If this is recognized immediately and the opening closed before contamination occurs, it may be of little consequence; however, deaths from peritonitis have resulted.

ANESTHESIA

The changes in the type of anesthetic used in this field of surgery have exerted a distinct influence not only on the respiratory system but on the cardiovascular-renal reserve. Ether, as a general anesthetic, presents the greatest hazards in cases of prostatic obstruction, not in its administration, for there is a wider margin of safety during ether anesthesia than in that produced by other general anesthetics, but in the subsequent renal depression and acute pulmonary complications. The patient with prostatic obstruction whose renal insufficiency has been reduced by established methods of preoperative treatment is particularly susceptible to the renal depression caused by ether anesthesia. Patients at the age when prostatectomy is usually performed are susceptible to the inhalation type of pneumonia, to acute bronchitis, and pulmonary edema. The various gas anesthetics have much to commend them, but unless they are skillfully administered they often produce cyanosis when anesthesia is carried to the point of complete relaxation. Lundy has called attention to the deleterious effect of repeated cyanosis. Regional anesthesia approaches the ideal in this field of surgery.

THE PROSTATIC PATIENT*

By G. G. IRWIN, M.D.

Charleston, West Virginia

IN ITS brief career as a specialty, urology has made many important contributions to the sum of medical knowledge. Its period of development has coincided with the discovery of the roentgen ray, aseptic surgery, chemotherapy, ethylene and the various synthetic

anesthetics, improved instruments, and the vastly increased knowledge of pathology, physiology and biological chemistry. The urologist has been quick to take advantage of these scientific advances, to such an extent that he can now claim that in no other field of medicine is more exact or more scientific diagnosis and treatment possible.

* Read before the Raleigh County Medical Society, April 26, 1928.

It is only a few years ago that the mortality of prostatectomy for benign prostatic obstruction was 25%, and probably more by a considerable figure, if all cases had been tabulated. It was indeed a brave, or desperate, patient who accepted operation, knowing that he had about an even chance to survive. Today, we see a much more cheerful prospect for these patients—the country over it has been estimated that the mortality for this operation is about 10%, and in the clinics of the more experienced operators it is a bit under 4%. Technical improvement in the operation itself has been accountable for some of this lowered mortality, but this effect is probably slight as compared with the effect of the better and more intelligent preoperative care of these cases.

The remainder of this paper will deal with the preoperative care of the patient with benign obstruction of the prostate.

Benign prostatic obstruction is either sclerotic or hyperplastic. The former type results from long-continued infection of the prostate gland which undergoes healing by the formation of scar tissue. This is the type of obstruction that occurs above an old urethral stricture. (The association of stricture of the urethra and prostatic hypertrophy is rare.) Clinically, the sclerotic obstruction occurs about a decade earlier than the hyperplastic form of obstruction. On rectal palpation, the prostate feels small and hard. It produces obstruction by contracting about the circumference of the bladder outlet, thereby raising the floor of the prostatic urethra and so making emptying of the bladder impossible. In this way retention, infection, back-pressure and renal impairment are produced. We shall consider the significance of these later. Diagnosis of sclerosis of the prostate depends upon coexistence of a small, hard prostate and the presence of residual urine in the bladder. Tabes and other spinal-cord conditions must be excluded as causes of retention. Treatment is directed to the severing of the obstructing scar tissue—at the present time, prostatic punching with or without the addition of some of the electric modalities. It is important to keep in mind that sclerosis of the prostate can cause all the injurious effects

on the heart and kidney that may follow from the hypertrophied prostate.

Most cases of prostatic obstruction are due to an overgrowth of glandular tissue, either of the suburethral or of the prostatic glands. This represents an hyperplasia rather than an hypertrophy. Why this hyperplasia occurs is unknown, although it is thought by some that it may have some connection with the sexual function. It is rather definitely demonstrated to be independent of the presence or absence of venereal infections. The hyperplasia of glandular tissue pushes the prostatic tissues aside, causing pressure atrophy of the prostate. The enlargement affects the lateral lobes most, although the possible combinations are many. In any event, the important result is that the floor of the urethra is raised, the length of the urethral canal is increased, and the bladder is prevented from completely emptying. Let me emphasize that a very small median lobe can cause very much obstruction, and, on the other hand, that a prostate that bulges hugely into the rectum may cause very little retention. The important thing is not the size of the prostate but the amount of retention that it causes.

The onset of obstruction is gradual. For some time the bladder musculature, by undergoing hypertrophy, can overcome the obstructive effect of the prostate. The tendency of the obstruction is to become greater, although this tendency may be masked by periods of quiescence. Eventually, as in the case of the heart with valvular obstruction, the bladder muscle gives up trying to compensate, and there is a reflux of urine up the ureters, which become dilated. Later, the kidney pelvis undergoes the same process. Further accommodation to this back-pressure is at the expense of the kidney tissue (hydronephrosis), with lessening of the kidney function. This, of course, throws added strain on the heart and bloodvessels of these elderly patients. In addition to this, sooner or later most of these cases undergo infection and our patients present themselves with a combination of bacterial and uremic poisoning—the so-called urosepsis. It may be taken as a safe working rule that every prostatic patient may be assumed to be suffering from urosepsis, as well as a certain amount of secondary cardiac

embarrassment. The improvement in the mortality from prostatic surgery proceeds largely from acting in accordance with this assumption.

The patient who is first seen with acute, complete urinary retention presents a grave emergency. The first means to be tried is a full dose of morphine and atropine with suprapubic heat. This failing, catheterization is indicated. If complete retention has existed more than several hours and the patient has not been leading a catheter life, let me warn against anything but the drop-by-drop relief of the distention. The too sudden relief of the over-distended bladder may be followed by renal hemorrhage, urinary suppression, uremia, and death three or four days later. The danger is in the withdrawal of the first three or four ounces. After five or six ounces have been withdrawn drop by drop, the emptying may proceed more rapidly until a pint has been taken away. After an interval the catheterization can be repeated, with an increasing amount being withdrawn. Catheterization should be done four or five times a day. I read of the use of the indwelling catheter, but my experience with it is not satisfactory. I find it very uncomfortable to these patients, and it has an unfortunate trick of "coming out" at 2 A. M. The period of complete retention does not usually last more than a week or ten days, although it may occasionally persist for months.

Whether able to void or not, our prostatic patient is suffering from the toxic effects of urinary retention. Our problem, therefore, is to relieve the retention as well as the toxemia. The retention, in so far as it contributes to the toxemia, can be overcome by the frequent, regular use of the catheter in the usual run of cases. The toxemia is due to retention, and is combated by increasing elimination, that is, by forcing fluids. These patients should have no less than 3,000 c.c. of fluid each 24 hours. There is nothing in medicine more impressive than the effect of bladder drainage and forced fluids on some of these extremely toxic, almost moribund, old patients. In the absence of more definite laboratory tests, be apprehensive when these patients continue to show a red, glazed, dry tongue.

The cardiovascular system can not be watched too carefully. It has been my experience that more prostatic deaths are due to cardiovascular than to renal failure. As a rule, with improvement in the renal function from adequate bladder drainage and plenty of fluid, it will be noted that the blood pressure and pulse rate will tend toward their normal levels. However, these are elderly patients, and their age, together with the deleterious effect of kidney insufficiency, predisposes them to myocardial weakness. A low blood pressure is of more sinister significance than one above normal.

The commonly accepted indications for prostatectomy are as follows: Persistent retention of five or six ounces of urine; repeated attacks of complete retention; serious hemorrhage from the prostate; uncontrollable urinary infection that causes too frequent urination and its attendant loss of sleep and rest; and a fifth, which seems not to have been sufficiently emphasized, namely, the fact that about one-fifth of prostates removed supposedly because they are causing benign obstruction show microscopic evidence of cancer. Deaver quotes Squier, of New York, to the effect that "Fifty per cent of unoperated patients will die within five years from the onset of obstructive symptoms where catheterization is unnecessary." The institution of catheter life, he adds, "will shorten the expectation of life to two years and eight months on the average, and will increase the mortality to 62½% within the shortened period." Figures from various sources give the average expectation of life after prostatectomy as ten years. It is apparent, therefore, that today it is safer for the prostatic patient to be operated than to depend upon the catheter.

The question of one- or two-stage operation can be dismissed briefly. In the absence of local complications in the bladder, such as severe infection, stone or diverticulum, if the patient can be made safe for prostatectomy by catheter drainage the one-stage operation is the method of choice. The sole purpose of suprapubic cystostomy, in the absence of the complications named, is drainage. If drainage can be accomplished by catheter, why the two-stage operation?

The determination of whether we have to do with stone or diverticulum can be made by cystography, and that is the practice in some clinics. Personally, I prefer to cystoscope these patients, but I believe it can and should be done at some favorable time before the operation.

The determination as to when to operate depends much upon the surgeon's experience and clinical sense. Apart from these, the following are accepted: The blood pressure and pulse rate have tended to approach their normal levels and have maintained that level for several days; the kidney function, as judged by the phenolsulphonaphthalein excretion and the blood urea concentration, has become stabilized. From the time the patient

comes under treatment until this stage is reached may vary from a few days to six months or more, but the above can be recommended as safe minimum tests of operability.

In conclusion, I may state that I have tried to emphasize the following points in the pre-operative care of the patient with benign prostatic obstruction:

1. The careful relief of the distended bladder.
2. That the obstructing prostate is only one element in these cases.
3. The importance of attention to the cardiovascular system.
4. The importance of forcing fluids.
5. The advantages of rational radical treatment as opposed to catheterization.

CONGENITAL HYPERTROPHIC PYLORIC STENOSIS: DIAGNOSIS AND TREATMENT*

By J. T. THORNTON, M.D.

*Wheeling Clinic
Wheeling, West Virginia*

DURING recent years much has been written concerning congenital hypertrophic pyloric stenosis. While little has been added to our knowledge, the general dissemination of information has resulted in more frequent and earlier diagnoses with a greatly diminished mortality. This is strikingly shown by comparing the mortality in different years. Prior to 1912 when Rammstedt described the operation for hypertrophic stenosis which has since born his name, the operative mortality was enormous, estimated as about 65%¹. Since 1912 the mortality has shown a steady decline, so that in 1926 Abt and Strauss² could report 221 operations with a mortality of only 3%. A similar improvement is shown in the result of medical treatment by contrasting Holt's³ report in 1914 of 29 patients with 58% mortality and Sauer's⁴ series of 497 cases reported 10 years later with a mortality of 8.9%. However, it is not improbable that even now many cases of pyloric stenosis are not diagnosed and

that consequently many unnecessary deaths occur. I propose in this paper to report somewhat in detail the results of my experience in the diagnosis and treatment of congenital pyloric stenosis.

The outstanding symptom of pyloric stenosis is vomiting. The mother brings the baby to the physician with a story that usually runs about as follows: The baby was perfectly healthy at birth and continued to do well for two or three weeks. There may have been some regurgitation of milk at intervals, but this was not sufficiently marked to cause concern. The baby gained weight normally and was thought to be healthy in every respect. Then without any known cause the vomiting become marked, as much as an entire feeding being vomited at one time. At first the vomiting occurred only once or twice in twenty-four hours but has gradually increased in frequency. At times the amount vomited seems greater than could be taken at one feeding. The vomiting is not a simple regurgitation but is explosive in character, the contents of the stomach

* Read before the West Virginia State Medical Association at Fairmont on May 24, 1928.

being thrown to a considerable distance. Apparently the baby is not nauseated but will return eagerly to the breast immediately after vomiting. Following the onset of vomiting the baby's weight remained stationary for a time and then began to diminish, so that now its weight is not much more than at birth. Whereas at first the baby had one to three bowel movements daily, lately constipation has become severe, the stools being small and obtained with difficulty. It gives every evidence of hunger, is restless, and cries a great deal. Camomile tea, catnip and fennel, and asafoetida have given little or no relief. The mother was told that her breast milk was poisoning the baby and was advised to discontinue the nursing. She then gave the baby an artificial food with slight improvement for a day or two, but then the vomiting became even more profuse than before. This story with minor variations is typical and when heard should always excite a strong suspicion of pyloric stenosis.

In obtaining the history the following points should be noted especially:

- (1) Weight of baby at birth.
- (2) Best weight and age when attained.
- (3) Age at onset of projectile vomiting.
- (4) Exact nature of stools.

After securing a careful history the physical examination is made. It is of paramount importance. In a warm room remove all the baby's clothing. If scales are at hand, obtain the exact weight. Lay it on a table in a good light. Note the general development, state of nutrition, color of skin and mucous membranes, presence or absence of hyper-tonicity, and any evidence of peristaltic activity. Then with warm hands and gentle touch palpate the abdomen, searching particularly for a small tumor mass to the right of the midline.

The next procedure is to partially fill the baby's stomach either with breast milk or with water from a bottle. The baby while nursing from the breast should be held in such a position that the abdomen may be inspected. Look for peristaltic waves of the stomach. In practically all cases of pyloric stenosis these waves can be seen after a sufficient quantity of fluid has entered the stomach. The waves start in the left upper

abdomen and move slowly toward the right and somewhat downward, crossing the midline. Many times there is a marked bulging of the abdominal wall, and the outline of the stomach is plainly visible. So definite are the peristaltic waves that there is rarely doubt as to their presence or absence.

Next feel for the small pyloric tumor, which is about the size of an olive, of firm consistence, and found to the right of the midline in the upper abdomen. In some cases where the stomach is markedly dilated the tumor is felt in the lower abdomen. It is quite likely that during the manipulation the baby will give an exhibition of projectile vomiting.

The signs that I rely upon for diagnosis are:

- (1) Projectile vomiting without nausea.
- (2) Peristaltic gastric waves.
- (3) Loss in weight.
- (4) Constipation with small stools containing little fecal material.

The finding of the pyloric tumor, regarded as quite important by some authorities, I do not consider essential for diagnosis and must confess my inability to palpate this tumor in the majority of my personal cases. X-ray examination, following the administration of breast milk containing a small amount of barium, in order to determine the degree of gastric retention after four hours, is advised, but I have never considered the procedure either necessary or desirable. In fact, it is to be condemned as imposing a hardship on babies whose vitality is lowered. The same information can be obtained more easily by aspirating the stomach content four hours after feeding a measured amount of milk, but this procedure likewise is unnecessary except in doubtful cases.

In hypertrophic stenosis there is an actual increase in the circular muscle fibers of the pyloric end of the stomach with a resulting permanent mechanical obstruction of greater or less degree. Many babies have projectile vomiting without demonstrable hypertrophy. In such cases it is assumed that there is merely a spasmodic contraction of the normal pyloric muscle without a permanent organic obstruction. Both conditions give similar symptoms, and it is essential to

determine whether or not true hypertrophy exists. In pylorospasm the peristaltic waves are usually absent, the stools are fecal, and the general picture is one of less severity. Moreover, well directed medical treatment will bring prompt amelioration in the symptoms.

General Considerations of Treatment—Pyloric stenosis may be treated by operative or by non-operative (medical) methods. That a case of well developed hypertrophy with mechanical blocking of the lumen of the pylorus and with a tumor of cartilaginous firmness can be cured by any measure other than surgical relief of the obstruction to my mind seems hardly possible. On the other hand presumably competent observers claim excellent results from treatment purely medical. I have treated successfully many babies with marked projectile vomiting without having to resort to surgery but have always regarded them as cases of pylorospasm or of hypertrophy without much narrowing of the lumen of the pylorus.

For purposes of treatment cases of pyloric stenosis may be divided into three groups—mild, moderate, and severe.

(1) In the mild case the amount vomited is not large, there is little or no loss in weight, and the general condition of the baby is good. In fact, it is impossible to be sure that hypertrophy exists.

(2) In the moderately severe case the baby vomits a considerable amount, but the loss in weight has not been great (less than 20% of the best weight), the stools show a fair amount of fecal material, and there is no dehydration of tissues.

(3) The severe case presents the typical picture of stenosis, characterized by emaciation, dehydration, and starvation stools.

The mild case should certainly be given the benefit of careful medical treatment, and this treatment should be persisted in so long as the baby is gaining weight and shows diminution in the vomiting.

The severe case should be operated upon promptly and without hesitation. The post-operative mortality varies directly with the percentage of weight lost. As the baby will certainly continue to lose weight, to attempt medical treatment would result only in ren-

dering the baby a less favorable operative risk.

As to the moderately severe case, when the diagnosis is made with certainty, nothing is to be gained by postponing operation, though it may not be urged so emphatically as in the group of severe cases. It is well to explain most carefully to the parents the exact nature of the pathologic process. If they elect a trial of medical treatment, it should be instituted with the distinct understanding that operation will be performed unless there is distinct improvement within a reasonable time. The operative recovery in this group of cases, provided the operation may not be delayed too long, should be almost one hundred percent.

Whether medical or surgical treatment be selected, it is most important to conserve the mother's breast milk. In any case of vomiting no more serious mistake can be made than to assume that the fault lies with the milk and not with the baby. At the present time I have under observation twins, one of whom is thriving beautifully on the mother's milk, while the other vomits persistently the same milk. Since mother's milk is almost essential in the post-operative treatment, I would urge strongly that measures be taken to continue the flow of breast milk, even though it is decided to experiment with artificial feeding.

A—MEDICAL TREATMENT

The following procedures are applicable to cases of pyloric stenosis and to cases of pylorospasm.

- (1) Administration of atropine.
- (2) Feeding with thick cereal gruel.
- (3) Refeeding immediately after vomiting.
- (4) Lavage of the stomach.

(1) The so-called atropine treatment was modified and popularized by Dr. Sidney Hass⁵ who employs relatively enormous doses. Beginning with one drop of a freshly prepared 1:1000 solution of atropine sulphate before each feeding, he increases the dose one drop at each feeding or at every second feeding until the vomiting stops or marked flushing of the skin occurs. The dose is then gradually diminished. He states that as much as seventy-two drops (gr. 1-14) in

one day has been given, and he seems to consider twenty to forty drops (gr. 1-50 to gr. 1-25) daily necessary for the success of this method. Duration of the atropine administration varies from a few weeks to a year.

In my own experience I have not given such large doses of atropine. My usual prescription is $\text{R Atropine Sulphate gr. 1-50—Aqua Dest. q.s. 4 oz.}$ Of this *mx* are given every four hours fifteen minutes before feeding. The dose is increased by *mi* each time until vomiting ceases or marked flushing of the skin occurs. The dose is then diminished slightly, to be increased again when toleration is established. About *mxxx* (gr. 1-400) every 4 hours is the most that I have found necessary to administer.

The atropine is best administered subcutaneously, but when this is not practicable it may be given by mouth. Remember that the ordinary medicine dropper is a most inaccurate measure and make the necessary correction for the special dropper being used.

(2) Feeding with thick cereal gruel is generally attributed to Sauer⁶ of Chicago. The formula that I employ is the one suggested by Mixsell⁷, using the following proportions:

Skim Milk	13 ounces.
Farina	2½ tablespoons.
Dextri-Maltose	1 tablespoon.
Cane Sugar	1 tablespoon.

Mix the above in the inner vessel of a double boiler, bring to a boil over the free flame, and boil for three minutes. Then cook in the double boiler for one hour to one and one-half hours. Divide the thick gruel equally among six cups and keep in a refrigerator. Shortly before feeding time place one of the cups in a pan containing hot water and beat the gruel with a spoon until it is warm and of smooth consistence. If necessary, a little hot water may be added to the gruel, which should be so thick that it will flow slowly from the inverted spoon like thick molasses. This is best fed to the baby through a Hygeia nipple with a sufficiently enlarged hole, not using a bottle, or it may be fed with a spoon or with two narrow tongue depressors, as suggested by Sauer.

Feedings should be given at intervals of four hours. The amount of food to be given

is determined by the weight of the baby. Usually a formula containing two ounces of skim milk for each pound of body weight and the remaining ingredients in the same proportion as given in the formula will be sufficient to produce a satisfactory gain in weight. However, some babies may require more, others will gain on less. It is wise to start with small feedings and gradually increase. To overfeed at the beginning is disastrous.

It is evident that this thick gruel will not furnish sufficient fluid to satisfy the baby's requirements. Hence it is essential to supply additional water. This may be given by mouth midway between feedings unless vomiting be caused. In that event it must be given by proctoclysis or by hypodermoclysis.

(3) Refeeding immediately after the baby vomits is a useful expedient in some cases, as the second feeding frequently is retained.

(4) Lavage of the stomach with a 3% solution of bicarbonate of soda once daily is of some benefit in nearly all cases, especially where there is a hypersecretion of mucus. This should be done immediately before a feeding, preferably before the early morning feeding.

A combination of all of these procedures is usually employed, though in my experience lavage is rarely necessary.

B—SURGICAL TREATMENT

Surgical treatment may be divided into three parts:

- (1) Pre-operative treatment.
- (2) The surgical operation.
- (3) Post-operative treatment.

(1) *Pre-operative Treatment.* — The ultimate success of the operation depends as much upon the preparation and after care of these little patients as upon the skill with which the operation is performed. All too frequently the baby is presented to the surgeon as a poor operative risk and requires a course of preparation extending over one or two days. The objects of the pre-operative treatment are to overcome dehydration and tendency to acidosis and to increase the resisting power of the baby. To accomplish these objects certain procedures are employed.

(a) Hypodermoclysis of normal salt solution. About 100 c.c. should be given every four hours.

(b) Intravenous injection of 10% glucose. The amount to be injected at one time is 1-50 of the baby's body weight. This amount may be calculated conveniently by multiplying the weight by ten; the product gives the number of cubic centimeters that may be injected with safety. In greatly emaciated babies this quantity may be exceeded somewhat. The rate of flow should be quite slow, not greater than 6 c.c. a minute. The temperature of the solution at the needle should be between 98° F. and 100° F.

(c) Blood transfusion. At least one transfusion of blood should be given. The quantity to be transfused can be determined in the same way as suggested under glucose injections.

(d) Feeding. An attempt should be made to feed small quantities of breast milk or thick cereal gruel at intervals of four hours, preceded by atropine subcutaneously.

(e) Rest and sleep. A patient that has a restless and disturbed night certainly is not in the best condition for operation, and this is particularly true of delicate infants. Hence it is desirable to secure for the baby as much sleep as possible prior to operation. The administration of sodium bromide, grs. 5 every four hours, is beneficial. Feeding, medication, and treatment should be given together, so that the baby may have periods of uninterrupted rest.

(f) Lavage of the stomach. Immediately before sending the baby to the operating room the stomach should be washed out thoroughly. This procedure is of great importance and under no consideration should be omitted.

(2)—*The Surgical Operation*—On all of my personal cases the unmodified Rammstedt operation has been performed. From its description one might imagine this operation to be simple and easy. However, there is hardly any operation in surgery that requires such delicacy and skill. All of the obstructing muscle fibers must be divided, else the stenosis is not relieved. The mucous membrane at either end of the pyloric tumor must

not be penetrated. The surgeon must do enough and not too much.

It is stated that vomiting after the unmodified Rammstedt operation is common, whereas the modified pyloroplasty of Strauss vomiting is absent. I cannot speak with authority on the comparative merits of the operations. However, in none of my cases has there been post-operative vomiting of any moment, and in the great majority there has been no vomiting.

During the operation the baby should be kept warm by external heat, and the utmost gentleness in handling the tissues should be observed. Local anesthesia with a weak novocaine solution is probably preferable to general anesthesia, though it is often wise to give a little ether should the baby struggle. Just before completing the closure of the incision, 100 c.c. to 150 c.c. of normal salt solution should be introduced into the peritoneal cavity. The wound dressing should be retained by wide strips of adhesive plaster, surrounding the body, and these should be retained for at least four weeks. The stitches should not be removed for three weeks except for cause. These precautions are taken to guard against rupture of the incision, an accident which is liable to occur in these poorly nourished infants with thin abdominal walls. The incision should be inspected frequently and every effort made to prevent wound infection.

Here I would call attention to the frequency of fever after operation. The temperature begins to rise on the first day and may reach 105°; on the third day it usually returns to normal. In spite of the high fever the general condition of the baby seems good, and no great alarm need be felt.

(3)—*Post-Operative Treatment*—At the conclusion of the operation the surgeon should return the baby to the medical man, who assumes entire charge of the after care. In every one of my cases precisely the same post-operative routine has been employed. This treatment is a modification of that advised in 1917 by Holt⁸ and Downes and has proven so satisfactory in my hands that I give it in detail, trusting that it may be helpful to others.

Immediately after operation the baby is placed in a warm bed and hypodermoclysis of normal saline given. At first the foot of the bed is elevated. Two hours later the head of the bed is elevated, and twelve hours later the patient is placed in semi-erect position.

Two hours after operation water 2 oz. is given by mouth; if retained, the following scheme of treatment is instituted.

(a) Hypodermoclysis of normal saline every six hours for three days.

(b) Proctoclysis of 5% glucose and soda, one ounce every three hours for three days.

(c) Feed every three hours, beginning 3½ hours after operation. Begin with breast milk 1 oz. and barley water 1 oz. At each successive feeding increase breast milk 3½ until 14 oz. are taken. Then allow the baby to nurse the breast every three hours, weighing before nursing and every three minutes thereafter until breast milk 2 oz. are taken.

(d) Give water and whiskey every three hours, alternating with the feedings. Begin with water 2 oz. and each time increase 31-2 until 15 oz. are taken. With each dose of water give whiskey *mx.* On the fifth day discontinue whiskey and give water 2 oz. between feedings.

(e) On the morning of the third day castor oil 1 oz. is given and the next two feedings omitted.

(f) At the end of one week the baby will be nursing and gaining normally.

To simplify the work of the nurse and to ensure accuracy in the carrying out of post-operative orders, I have prepared typewritten sheets, one for each day, setting forth explicitly what is to be done hour by hour. A reproduction of these sheets is appended.

My personal cases of congenital hypertrophic pyloric stenosis that came to operation number thirteen. In all cases the diagnosis was confirmed at operation. Two babies died, one six days after operation from convulsions, the other twenty-three days after operation from acute bronchitis and rupture of abdominal incision. The mortality rate of this series is 15.5½. The usual preponderance of males obtained, twelve boys and one girl. The age at time of operation varied from two to eighteen weeks, the average

age was seven weeks. Nine babies weighed less at operation than at birth. The age at onset of projectile vomiting varied from one day to six weeks. Three cases began to vomit within the first week and two within the sixth week. The time elapsing between onset of vomiting and operation varied from six days to one hundred three days. Constipation was present in all and severe in nine cases. Pyloric tumor was palpated in five cases. Post-operative fever was present in all cases. In six cases temperature was 104° or more. However, it returned to normal after two or three days. Vomiting after operation was absent in nine cases, slight and occasional in three cases, and severe in only one case. Duration of stay in hospital varied from eleven to twenty-five days, the majority of patients being discharged within three weeks. The babies that recovered were all in good condition and gaining weight on discharge, the majority weighing over one pound more than on admission.

A short summary of the end result in the cases that recovered may be of interest.

(1) John L., born July 12, 1918; birth weight, 8 lb. 8 ozs. Operation August 21, 1918. Age 6 weeks. Weight not known. Discharged September 9, 1918. Weight 8 lbs. 12 ozs.

Recently I had the pleasure of seeing this patient who was operated upon by Dr. Downes in New York City. This boy is well developed and perfectly healthy. He has not been subject to digestive disturbances. Gastro-intestinal X-ray study showed no abnormality in motility or in form.

(2) Christian S., born December 30, 1921; birth weight, 8 lbs. 8 ozs. Operation April 2, 1922. Age 3 months. Weight 8 lbs. 6 ozs. Discharged April 18, 1922. Weight 8 lbs. 10½ ozs. Gain 4½ ozs. in 16 days. Report in 1924—child in good condition.

(3) Jock J., born July 31, 1923; birth weight, 8 lbs. 2 ozs. Operation August 14, 1923. Weight 7 lbs. 1 oz. Discharged August 25, 1923. Weight 8 lbs. no ozs. Gain—15 ozs. in 11 days. February 3, 1928—Age 4½ years. Weight 38 lbs. 6 ozs. General condition good.

(4) Philips J., born November 25, 1923; birth weight 7 lb. no ozs. Operated upon

March 1, 1924. Age 13½ weeks. Weight 6 lbs. 7 ozs. Discharged March 20, 1924. Weight 8 lbs. 2 ozs. Gain, 27 ozs. in 19 days. Report in 1927 that he is in good condition and has developed normally.

(5) Pete A., born February 18, 1924; birth weight 9 lbs. no ozs. Operation April 5, 1924. Age 6½ weeks. Weight 6 lbs. no ozs. Discharged April 17, 1924. Weight 7 lbs. 4 ozs. Gain, 20 ozs. in 12 days. August 19, 1924—Weight 15 lb. 5½ ozs. Condition good. Gain in 4 months 8 lbs.

(6) Adeline C., born July 8, 1925; birth weight 10 lbs. no ozs. Operation November 9, 1925. Age 18 weeks. Weight 6 lbs. 15 ozs. Discharged November 26, 1925. Weight 8 lbs. 4½ ozs. Gain, 21½ ozs. in 17 days. February 2, 1927—Age 1 year, 7 months. Weight 22 lbs. 2 ozs. Condition good.

(7) William H., born October 24, 1925; birth weight 8 lbs. 2 ozs. Operation February 5, 1926. Age 15 weeks. Weight 8 lbs. 11½ ozs. Discharged February 26, 1926. Weight 9 lbs. 11 ozs. Gain, 15½ ozs. in 21 days. November 23, 1926—Weight 21 lbs. 10½ ozs. Age 13 months. Condition good.

(8) Robert S., born July 1, 1926; birth weight 10 lbs. 4 ozs. Operation August 7, 1926. Age 5 weeks. Weight 7 lbs. 10 ozs. Discharged August 18, 1926. Weight 8 lbs. 12 ozs. Gain, 18 ozs. in 11 days. October 7, 1926—Weight 13 lbs. 4 ozs. Condition good.

(9) James M., born November 6, 1926; birth weight 7 lbs. 8 ozs. Operation January 1, 1927. Age 8 weeks. Weight 8 lbs. Discharged January 22, 1927. Weight 8 lbs. 8 ozs. Gain, 8 ozs. in 21 days. March 4, 1927—Weight 11 lbs. 4 ozs. Condition good. No vomiting. Average gain 7 ozs. a week.

(10) John F., born February 7, 1927; birth weight 7 lbs. no ozs. Operation March 31, 1927. Age 7½ weeks. Weight 7 lbs. Discharged April 13, 1927. Weight 8 lbs. 8 ozs. Gain, 24 ozs. in 14 days. Recent report, baby doing well.

(11) Calvin M., born June 11, 1927; birth weight 8 lbs. 4 ozs. Operation July 24, 1927. Age 6 weeks. Weight 6 lbs. 12½ ozs. Discharged August 10, 1927. Weight 8 lbs. 1½ ozs. Gain, 21 ozs. in 17 days. August 23,

1927—Weight 9 lbs. Condition good. No vomiting.

The operations were performed by the following surgeons:

Dr. W. A. Downes, one case; Dr. Jacob Schwinn, one case; Dr. D. M. Aikman, one case; Dr. W. S. Fulton, eight cases.

CONCLUSIONS

(1) Congenital hypertrophic pyloric stenosis can be diagnosed readily.

(2) Surgical intervention should be prompt.

(3) The end results are excellent.

(4) Thirteen personal cases operated upon are reported.

BIBLIOGRAPHY

1. Pfaundler and Schlossman: Diseases of Children, vol. III, p. 211 (1908).
2. Abt and Strauss: Med. Clin. of N. Am., vol. IX, p. 1306.
3. Holt: J. A. M. A., June 27, 1914.
4. Sauer: Arch. Pediat., XLI, p. 145 (1924).
5. Haas: J. A. M. A., LXXIX, p. 1314 (1922).
6. Sauer: Arch. Pediat., XXXV, p. 385 (1918).
7. Mixsell: A. ch. Pediat., XXXVI, p. 449 (1919).
8. Holt: J. A. M. A., LXVIII, p. 1517 (1917).

PYLORIC STENOSIS

Post-Operative Orders

FIRST DAY

OPERATION—9 to 10 a.m.

10:00 a.m.—Elevate foot of bed. External heat.

10:30 a.m.—Hypodermoclysis; normal saline.

12:00 Noon—Elevate head of bed.

Water, 2 oz. by mouth.

1:30 p.m.—Breast milk, 1 oz.; Barley water, 1 oz.

3:00 p.m.—Water, 2 oz.

Proctoclysis, 5%; glucose and soda, 1 oz.

4:30 p.m.—Breast milk, 1 oz. ss; barley water, 1 oz.

6:00 p.m.—Water 2 oz. ss; whiskey gtts. x.

Proctoclysis, 5%; glucose and soda, 1 oz.

Hypodermoclysis; normal salt solution.

7:30 p.m.—Breast milk, 2 oz.; barley water 1 oz.

9:00 p.m.—Water 3 oz.; whiskey gtts. x.

Proctoclysis, 5%; glucose and soda, 1 oz.

10:30 p.m.—Breast milk 2 oz. ss.; barley water, 1 oz.

12:00 p.m.—Water 2 oz. ss; Whiskey gtts. x.

Proctoclysis, 5%; glucose and soda, 1 oz.

Hypodermoclysis; normal salt solution.

Place patient in semi-erect position.

SECOND DAY

1:30 a.m.—Breast milk, 3 oz.; barley water, 1 oz.

3:00 a.m.—Water, 4 oz.; whiskey gtts. x.

Proctoclysis, 5%; glucose and soda, 1 oz.

4:30 a.m.—Breast milk, 3 oz. ss; barley water, 1 oz.

6:00 a.m.—Water 4 oz. ss; whiskey gtts. x.

Proctoclysis, 5%; glucose and soda, 1 oz.

Hypodermoclysis; normal saline.

7:30 a.m.—Breast milk, 4 oz.; barley water 1 oz.

9:00 a.m.—Water, 5 oz.; whiskey gtts. x.

Proctoclysis, 5%; glucose and soda, 1 oz.

10:00 a.m.—Breast milk, 4 oz. ss; barley water 1 oz.

12:00 Noon—Water 5 oz. ss; whiskey gtts. x.
 Proctoclysis, 5%; glucose and soda, 1 oz.
 Hypodermoclysis; normal saline.
 1:30 p. m.—Breast milk, 5 oz.; barley water, 1 oz.
 3:00 p. m.—Water, 6 oz.; whiskey gtts. x.
 Proctoclysis, 5%; glucose and soda, 1 oz.
 4:30 p. m.—Breast milk, 5 oz. ss; barley water, 1 oz.
 6:00 p. m.—Water 6 oz. ss; whiskey, gtts. x.
 Proctoclysis, 5%; glucose and soda, 1 oz.
 Hypodermoclysis; normal saline.
 7:30 p. m.—Breast milk, 6 oz.; barley water, 1 oz.
 9:00 p. m.—Water, 7 oz.; whiskey gtts. x.
 Proctoclysis, 5%; glucose and soda, 1 oz.
 10:30 p. m.—Breast milk, 6 oz. ss; barley water, 1 oz.
 12:00 p. m.—Water, 7 oz. ss; whiskey, gtts. x.
 Proctoclysis, 5%; glucose and soda, 1 oz.
 Hypodermoclysis; normal saline.

THIRD DAY

1:30 a. m.—Breast milk, 7 oz.; barley water, 1 oz.
 3:00 a. m.—Water, 8 oz.; whiskey, gtts. x.
 Proctoclysis, 5%; glucose and soda, 1 oz.
 4:30 a. m.—Breast milk, 8 oz. ss; barley water, 1 oz.
 6:00 a. m.—Castor oil, 1 oz.
 Proctoclysis, 5%; glucose and soda, 1 oz.
 Hypodermoclysis; normal saline.
 9:00 a. m.—Water 9 oz.; whiskey, gtts. x.
 S. S. enema.
 10:30 a. m.—Breast milk, 8 oz.; barley water, 1 oz.
 12:00 Noon—Water, 9 oz.; whiskey, gtts. x.
 Proctoclysis, 5%; glucose and soda, 1 oz.
 Hypodermoclysis; normal saline.
 1:30 p. m.—Breast milk, 8 oz. ss; barley water, 1 oz.
 3:00 p. m.—Water 9 oz. ss; whiskey, gtts. x.
 Proctoclysis, 5%; glucose and soda, 1 oz.
 4:30 p. m.—Breast milk, 9 oz.; barley water, 1 oz.
 6:00 p. m.—Water, 10 oz.; whiskey, gtts. x.
 Proctoclysis, 5%; glucose and soda, 1 oz.
 Hypodermoclysis; normal saline.
 7:30 p. m.—Breast milk, 9 oz. ss; barley water, 1 oz.
 9:00 p. m.—Water 10 oz. ss; whiskey, gtts. x.
 Proctoclysis; 5% glucose and Soda, 1 oz.
 10:30 p. m.—Breast milk, 10 oz.; barley water, 1 oz.
 12:00 p. m.—Water, 11 oz.; whiskey, gtts. x.
 Proctoclysis; 5% glucose and Soda, 1 oz.
 Hypodermoclysis; normal saline.

FOURTH DAY

1:30 a. m.—Breast milk, 10 oz. ss; barley water 1 oz.
 3:00 a. m.—Water, 11 oz. ss; whiskey, gtts. x.
 Proctoclysis; 5% glucose and Soda, 1 oz.
 4:30 a. m.—Breast milk, 11 oz.; barley water, 1 oz.
 6:00 a. m.—Water, 12 oz.; whiskey, gtts. x.
 Proctoclysis; 5% glucose and Soda, 1 oz.
 Hypodermoclysis; normal saline.
 7:30 a. m.—Breast milk, 11 oz. ss; barley water, 1 oz.
 9:00 a. m.—Water, 12 oz. ss; whiskey, gtts. x.
 Proctoclysis; 5% glucose and Soda, 1 oz.
 10:30 a. m.—Breast milk, 12 oz.; barley water, 1 oz.
 12:00 Noon—Water 13 oz.; whiskey, gtts. x.
 Proctoclysis; 5% glucose and Soda, 1 oz.
 Hypodermoclysis; normal saline.
 (Discontinue hypodermoclysis and proctoclysis.)

1:30 p. m.—Breast milk, 12 oz. ss; barley water, 1 oz.
 3:00 p. m.—Water, 13 oz. ss; whiskey, gtts. x.
 4:30 p. m.—Breast milk, 13 oz.; barley water, 1 oz.
 6:00 p. m.—Water, 14 oz.; whiskey, gtts. x.
 7:30 p. m.—Breast milk, 13 oz. ss; barley water 1 oz.
 9:00 p. m.—Water, 14 oz. ss; whiskey, gtts. x.
 10:30 p. m.—Breast milk 14 oz.; barley water, 1 oz.
 12:00 p. m.—Water, 15 oz.; whiskey, gtts. x.

FIFTH DAY

Baby to breast every three hours. Weigh before nursing and every 3 minutes thereafter until baby receives 2 oz. of breast milk.

Discontinue whiskey and give water 2 oz. between feedings when baby is awake.

Discussion

DR. CLAUDE L. HOLLAND (Fairmont): Mr. President and Gentlemen: I want to compliment Dr. Thornton on the thoroughly and masterly way in which he has handled his subject.

I feel that I could add little or nothing to what has been said, but desire to stress certain features already mentioned.

The thing of prime importance is early diagnosis. This presupposes the taking of a careful and complete history and the making of a thorough and painstaking examination.

There is no doubt that many of these infants have died without the condition being recognized. Others are diagnosed so late as to make the patient a poor operative risk. In some the tissues have suffered so much from starvation and dehydration that the organism will not respond after the stenosis has been relieved.

There has been much discussion as to whether or not spasm of the pylorus is a distinct entity. My feeling is that such a condition often exists. That it occurs in conjunction with stenosis and sometimes exaggerates the symptoms there can be no doubt. My belief is that it is the cases of moderate stenosis with spasm that are relieved by treatment with atropine and thick cereal feeding.

Those of you who have seen the extreme degree of stenosis together with the dense fibrous condition of the pyloric tissue in some cases coming to operation will readily agree that it could only have been relieved by surgery.

In my personal experience I have been able to palpate a tumor in only about half the cases coming to operation, and in the cases

successfully treated by other means less than that.

In well-marked and advanced cases, I want to make a plea for early operation, since temporizing in these cases can only increase the rate of mortality. Let me emphasize here still further what the Doctor has said regarding the importance of pre-operative preparation by means of intravenous glucose, blood transfusion, and above all, the administration of water by entercolysis and by hypodermoclysis, that the patient may present as good a surgical risk as possible.

DR. JAMES MITCHELL (Washington, D. C.): I can't resist the temptation to say a few words on the subject of this paper. It is a subject in which I have been tremendously interested for a great many years.

I think Dr. Thornton's paper emphasizes two things especially and there are two points on which I should like to place special emphasis. First, the importance of the pediatrician; second, the importance of collaboration between the pediatrician and the surgeon.

In these cases, the surgeon plays a very small part. The operation is one of the simplest intra-abdominal operations. It is very easy. It can always be done under local anesthesia, and the surgeon is a very small factor. The important man in this case is the pediatrician, and this is the one case that I do not insist on taking care of, myself. In all abdominal cases, I think the medical man should disappear during the first days after operation. In these cases, the pediatrician should never disappear. He gets the patient ready; he sees that he is free from his dehydration, and the minute the operation is over, the patient is turned back to the pediatrician. The surgeon knows as much about feeding a baby as he does about feeding a sea lion. The pediatrician understands this work.

I think that is a most important thing in the treatment of these cases, and in the successful treatment of them.

I have been tremendously interested in this subject for eighteen years. About eighteen years ago, Bill Downs, Dean Lewis, and I did our first operations on these cases, and we had a friendly controversy ever since. We always discuss it when we get together.

Downs, of course, is head and shoulders above the rest of us. He has had over a thousand cases now, with wonderful results.

In the old days we had to do a gastroenterostomy, and anyone who has ever tried to do a gastroenterostomy on a two weeks or a four weeks old baby knows what he is up against. It is fine embroidery—and the mortality used to be tremendously high.

I was lucky in my first three cases of abdominal gastroenterostomy in that they all recovered, more by luck than because of good management. So far I have had nineteen. I have followed them all; the longest eighteen years. They are all healthy strong, normal children, even the three gastroenterostomies.

Why any pediatrician should insist upon medical treatment in these cases, I have never been able to understand, especially since the Rammstedt operation has been introduced. It is the simplest little thing, so simple that I feel now that even in the spasm cases it might be worthwhile doing it.

A little incision is made, under local anesthesia. The pylorus can be readily delivered with just an incision big enough for the thumb and finger, and then with one little nick of the knife, the rest being done with a sharp, small, curved clamp, simply spreading the muscle, which will tear readily (it doesn't have to be cut), dropping the thing back, and it is all over. We used to cover them all over. That isn't necessary. Simply make your incision through the peritoneum and spread the rest with this clamp till you come to the thin mucous membrane at either end, where you have to be careful.

I don't believe the pyloric tumor, once it is formed, ever disappears. Downs, at an autopsy eight years after operation, in which gastroenterostomy had been done, found his pyloric tumor just as it was when the baby was a few weeks old.

The youngest case I had was operated when he was ten days old, a Rammstedt operation. That is the youngest case reported, so far as I know. The longest case was done eighteen years ago. This eighteen-year-old case is the most interesting one I have ever had. It was my first, and the subject was extremely young then. It was with great difficulty that I persuaded the physician to let me do the

operation and I admire him now for yielding, because the chances weren't very great for recovery. But this boy went along for seventeen years, a perfectly healthy, normal boy. A year ago, out of a clear sky, he suddenly began to feel badly, and then one day vomited a pint of bright red blood and passed toric stools in the rectum. His hemoglobin dropped down to eighteen. He was desperately ill, and we didn't know what in the world he was doing.

He was X-rayed. His gastroenterostomy was working freely, and nothing was going through the pylorus. I transfused him several times. His hemoglobin picked up to about forty. We could not get it to go beyond that.

A careful examination of the stool showed no more blood in his stools, no occult blood.

The family became restless and took this boy out to Rochester. He was looked over by the Mayo brothers and they advised exploration, with four possible diagnoses: first, duodenal ulcers; second, jejunal ulcer; third, a benign growth of the stomach; and, fourth, varices somewhere in the gastrointestinal tract. That gave a wide field for exploration.

The family telegraphed me that they didn't know what to do. I said, "Stay put; you are in the best of hands." I wasn't anxious to look at it, but the boy came home and we operated. We found the pyloric tumor just as it was eighteen years ago; just as big. It wasn't as hard. The muscle was flabby. Projecting into the duodenum was a little collar of apparent mucous membrane. The stomach was normal; there were no adhesions. The gastroenterostomy was perfect, evidently working well.

Then came the question of what to do. "Well," I said, "we haven't looked for these varices in the stomach. We have to open the stomach, anyway. Why not resect the whole lower end of the stomach and then get a look in?" So I advised opening the duodenum just below the pylorus, and turned it in. He had had the gastroenterostomy already. I cut across the stomach about a third of the way up, just freeing the gastroenterostomy, and took my clamp off, opened the stomach wide, and looked in. Everything was perfectly healthy and normal. There was no sign of ulceration. I could look down into the duo-

denum, and that was perfectly free. So I closed up the lower end of the stomach. The boy immediately proceeded to pick up, and he is now playing football and baseball and he is the picture of health. He has never had a recurrence. His hemoglobin has gone up to normal.

The only conclusion I can reach is that the bleeding must have come from the mucous membrane which was projecting into the duodenum and possibly bulging a little into the stomach, because there was no other explanation. He has gotten well since the lower end of his stomach was removed. Just why that is, I don't know.

But the thing that this showed us was: Once there is hypertrophy of the pylorus, that hypertrophy lasts, certainly for eighteen years.

DR. B. S. BRAKE (Clarksburg): Doctor Mitchell had an opportunity to view a pylorus eighteen years after operation. I had an opportunity to view one of them four days after a Rammstedt, and the observation might be worth relating.

It became necessary on account of a lesion which developed lower in the abdomen to re-open this child's abdomen four days after the operation, and I naturally examined the field of the Rammstedt operation and was surprised to find that the mucous membrane was entirely covered over by endothelium. It was completely well, and one would almost have overlooked the operation if he hadn't known it had been performed. I was surprised at the completeness of the healing and the endothelialization of the incision.

DR. J. T. THORNTON: I wish to thank the doctors very much for their discussion, and particularly Dr. Mitchell for speaking of the surgical treatment. I didn't speak of that because you know surgery and I didn't feel that I should speak of the technique of the operation itself.

One curious thing I have noted is that the scar grows with the baby. As the baby grows, the scar grows. I really never understood why that was. I should think the scar would stay the same length and wouldn't get longer.

But the point I want to get over is that many of these cases are overlooked. The baby begins vomiting and it is weaned from the

breast, thinking the breast milk is at fault, and it is put on one feeding after another (that is the story as it is told to you), and the baby gets worse and worse, and a lot of them must die without having the true diag-

nosis made. So, whenever you have a vomiting baby, I want you to think of pyloric stenosis and to think that surgery, if it is a case of hypertrophic stenosis, offers a certain, sure cure.

ARSENIC IN DERMATOLOGY*

By L. G. BEINHAUER, M.D.
Pittsburgh, Pennsylvania

THE general practitioner in medicine has long held an erroneous idea concerning the therapeutic efficiency of arsenic in the treatment of skin diseases. Without a doubt this belief has been handed to him as a tradition or a heritage rather than a scientific fact, because arsenic, for a long time, has headed the list of remedies recommended for the relief of practically every skin disorder with which he had contact. Modern dermatologists, however, are striving to correct this erroneous impression and are teaching the general practitioner the fallacy of this idea, so that the use of arsenic today has been curtailed as a panacea and has been limited in its scope to a therapeutic drug that must be given by selection rather than empiric administration. The reliance placed upon arsenic in the past has been reversed and its standard as the acme of therapeutic efficiency in skin diseases is now no longer held.

It will be well to remember that arsenic administration is attended at all times with the hazard of producing toxic manifestations. These vary from the severe acute poisonings terminating in kidney damage, gastrointestinal disorders, nerve palsies, and even death, to the milder, yet at times serious, skin reactions which interest us most. To those familiar with the intravenous administration of arsphenamine in syphilis, the urticarial, eczematoid, keratotic, pigmentary, purpuric, hemorrhagic, lichenoid, jaundiced and exfoliative skin reactions so often encountered need only be mentioned to recall the protein types of skin toxemias manifested by the susceptible patients treated with arsenic, not to mention the provoking respiratory, kidney

and gastrointestinal symptoms which so often are complications.

The effects of arsenic upon the skin are almost exclusively confined to the epithelium. Experience has taught that its therapeutic efficiency is better when the lesions are superficial, diffuse in character, and present a subacute or chronic aspect. Its action upon the acute inflammations of the skin is more unfavorable and uncertain and, in most cases, exercises an irritable and harmful reaction. Its action is slow, requiring long periods of administration, which, in many instances, may cause cumulative and mass action, thereby rendering the drug toxic rather than beneficial. Its dosage varies as does the susceptibility of the patient, and should always be given with caution, ascertaining by slow, progressive administration the patient's tolerance. When a patient's tolerance is learned, an increase of dosage is given with discretion. It is always best to give this medication after meals and throughout its administration a careful watch should be kept for toxic manifestations.

Its use has been chiefly confined to syphilis, acne, sarcoid, eczema, psoriasis, pemphigus, dermatitis herpetiformes, lichen planus, pellagra and pityriasis rubra, although practically every known skin disorder has been subjected to its use, with indifferent results. To verify this statement one needs only to consult the various texts on dermatology, where the therapeutic efficiency of arsenic is recommended for the same skin disease by the various authors with such explanatory adjectives as "doubtful," "helpful," "of some value," "tonic," "alterative," "indicated," "worthy of a trial," "beneficial," and others

* Original paper.

too numerous to mention. The unprejudiced yet confusing view formerly held of the value of arsenic, even in cases properly selected, justifies the conclusion that it is a drug of uncertainty and, in a great proportion of cases, a very disappointing one. A concensus of dermatologic opinions tend to verify the fact that the commonplace practice and routine administration of arsenic has been without scientific basis and its panaceal prescription is not only irrational but harmful as well in its effects upon not only the cutaneous manifestation but also the subjective symptoms. The reliance heretofore placed upon its therapeutic efficiency to the exclusion of other and better methods of treatment is no longer to be tolerated. To date no authentic publication has appeared in which arsenic *per se* was responsible for absolute clinical cures. To those familiar with its use in pemphigus, dermatitis herpetiformes, sarcoid and the like where hope rises highest for its recommendation, dismal failures have been noted on many occasions. To pass over without mentioning the favorite preparations used in dermatology would be incomplete. The mere mention of the arsphenamines, Fowler's solution, Donovan's solution, sodium arsenite and cacodylate, arsenious acid and asiatic pills, recall to mind the popular forms of prescribing.

It would be well at present to make known our plea for the intelligent and selective administration of arsenic in the treatment of skin diseases. Its routine prescription in

dermatologic manifestations is deplored and should be prohibited. Its indications are few, and, when prescribed, should be given with conservatism. Its application should be delayed for other equally efficient or better methods of treatment, and it always should be the last rather than the first drug prescribed for a skin disorder. Its routine administration must be curtailed, and the absolute reliance placed upon its therapeutic efficiency should be discouraged. When properly selected and administered it will prove a valuable drug, but its panaceal use will always prove disappointing and harmful.

In the future it will be well to remember these cardinal points before using arsenic in the treatment of skin diseases:

1. Arsenic should be the last and not the first drug prescribed in the treatment of the common skin diseases.

2. When selected, its efficiency will be greatest where the lesions are diffuse, superficial, and subacute or chronic in character.

3. It is absolutely prohibited in the acute inflammations of the skin, especially if oozing is present.

4. It is highly recommended in the bullous eruptions of the skin.

5. A failure should not be so regarded if, for instance, only Fowler's solution has been administered.

6. Arsenic is a valuable drug in skin disorders, but its therapeutic indication requires medical selection and intelligence.

EARLY DIAGNOSIS OF PULMONARY TUBERCULOSIS *

By CHURCHILL ROBERTSON, M.D.

Mount Regis Sanatorium
Salem, Virginia

IT IS NOT an easy task to make a diagnosis of pulmonary tuberculosis in its incipency, for it is rare that a patient will present himself with symptoms sufficiently pronounced to justify such a diagnosis on symptoms alone.

The first evidence of active tuberculosis in an adult person will probably be weakness and fatigue. The patient will complain that he tires very easily, that his endurance is not what it used to be; he arises in the morning tired and it is a drag to go through the duties of the day. Later he becomes nervous and

* Read before the Raleigh County Medical Society, March 29, 1928.

irritable, and is easily annoyed. At this stage the female frequently begins to weep and is generally thought to have a nervous breakdown. Indifferent appetite or indigestion is found at this stage in about one half of the cases.

It is not uncommon to receive a history of a patient having had some acute illness, deep-seated cold, or operation, following which he states he has never regained his strength, even though this illness dates back months or years.

We must realize that 98 per cent of all people have the tuberculosis germ in their system, though it may not ever manifest itself as active tuberculosis. Statistics show that ten per cent of all the deaths are due to tuberculosis. When we consider that one per cent of the entire population of America has active tuberculosis, we should be constantly on our guard to make an early diagnosis. Statistics show that from 87 to 97 per cent of the cases diagnosed in the incipency and receive sanatorium treatment and training are not only entirely rehabilitated but have a longer span of life than those people who have never had an active lesion. This is easily understood when we realize the care the ex-tuberculous patient takes of himself.

Should the patient delay seeking medical aid until he looks tuberculous, and gives a history of having had, at some time past, enlarged glands in his neck, unaccompanied by tonsillitis or other foci of infection, or having had night sweats, considerable loss of weight, a productive cough, blood-streaked sputum or hemorrhage, an afternoon temperature, chills and hoarseness, shortness of breath on exertion, pleurisy or fistula in ano, we would have no difficulty in diagnosing tuberculosis on our first visit to the patient, but we never find all of these symptoms in an early tuberculosis case. Of these, hemoptysis and pleurisy are more nearly pathognomonic. Expectoration of a dram or more of pure blood is usually indicative of tuberculosis, and pleurisy with or without effusion should always be considered tuberculous until proven otherwise.

It is impossible to emphasize too greatly the value of a carefully taken history. It was Dave Lyman who said: "If only one of the many means of making a diagnosis were left

to me, I would take the history of the case." Our interest is greatly aroused in a case which gives a history of exposure to tuberculosis in childhood, but we should not overlook the fact that a large percentage of active tuberculous patients have no knowledge whatever of having been unduly exposed. Dr. John Potts, of Fort Worth, Texas, says: "It would be just as sensible for one to deny the possibility or the reality of having a broken leg by saying: 'We don't have broken legs in our family,' " as to deny the fact that they do not have tuberculosis because it is not in their family.

We can not be too zealous in our efforts to make an early diagnosis. If our patient has felt subnormal over a period of several months, in spite of the fact that he is receiving treatment for some other disease, our attention should again be turned to tuberculosis, for the prognosis depends largely on what is done or left undone during the first six months of the disease. Frequently, physical examination leaves us in doubt as to a positive diagnosis. There is no absolute standard on which the diagnosis can be made from physical examination alone, for the interpretation of auscultatory findings are of such grave importance. We must remember the anatomical differences of the two apices in regard to breath sounds, due to the relationship of the bronchi, the vessels, and the trachea. At the right apex breathing is more bronchial in character; at the left apex vocal fremitus and resonance are commonly increased. Abnormal breath sounds located at the apex and just below the clavicle and around the hilum region, either front or back, are suggestive. But should we find, following the auscultatory cough, subcrepitant or crepitant rales, we may well make a diagnosis of tuberculosis. These rales are most frequently found above the third rib and third dorsal spine.

Rales which can be elicited in no other manner are brought out by the cough following a prolonged expiration. Inspection, palpation, and percussion are important, but no chest examination is complete without the auscultatory examination following the expiratory cough. Nor is an examination complete without a careful study of the nose,

pharynx, larynx, and accessory sinuses, for infections of these will give symptoms suggestive of tuberculosis.

The diagnosis is always clinched by a positive sputum, but even repeated negative sputums is not sufficient proof that there is no involvement, and if we wait for a positive sputum we frequently have lost much valuable time for our patient.

The X-ray is invaluable as a diagnostic aid. Frequently the diagnosis is made on history and X-ray alone. I recall recently having examined a patient who had a suspicious history. Physical examination revealed nothing, but on X-ray we found an advanced miliary tuberculosis. It is not unusual to discover the initial lesion by X-ray when it has not advanced far enough to be picked up by the stethoscope.

Every suspicious patient should have a well-taken and carefully interpreted X-ray of his chest. We are not fulfilling our obligations to our patient, nor are we doing ourselves justice, unless we avail ourselves of every possible means of making a diagnosis.

There are many conditions which simulate pulmonary tuberculosis and must be differentiated from it. I will speak briefly of some of them.

Bronchitis.—This is usually bilateral and basal. Following the auscultatory cough, coarse bubbling rales can be heard which decrease in size and frequency as the apex is approached. X-ray films may show exaggeration of the descending trunks or they may show nothing. Apices, as a rule, are clear. However, we must not lose sight of a basal tuberculosis, which is rather unusual for the initial lesion, but this may be ruled out by repeated sputum examinations.

Bronchiectasis is confusing at times. Our patient will present all the earmarks of a tuberculous involvement. The cough will be fairly constant, the expectoration copious, at times as much as a quart in twenty-four hours is expectorated, occasionally they may expectorate bright blood following a paroxysm of coughing, their history is suggestive, but with repeated negative sputum we rule out tuberculosis, and if lipiodol is injected the entire bronchial tree will be seen

to be greatly dilated, even to the terminal bronchioles.

A patient with *pulmonary abscess* usually gives a definite history of having felt perfectly well until he had influenza, pneumonia, or some surgery done "above the collar." At this stage, physical examination may be entirely negative, and it is only with X-ray that a positive diagnosis can be made. The breath is fetid; the leucocyte count is high; the sputum is negative for tuberculosis; the history is typical of abscess, and the X-ray shows, as a rule, a definite homogeneous mass varying in size, depending upon the duration of the involvement.

Tumors may be primary or metastatic. When found, there is usually flatness on percussion, tubular breathing; there are no characteristic rales heard; the sputum is usually frothy and frequently discolored with blood; hemoptysis is not uncommon, and it is most frequently accompanied with severe pain in the chest. X-ray is our most valuable aid in diagnosing this condition.

Syphilis of the lung is a condition we hear frequently mentioned but rarely see. The two diseases are not incompatible, and we should not try to explain away an existing lung condition because we find a positive Wasserman.

Cardiac conditions, such as septic endocarditis and mitral stenosis, are at times confusing. The former may be ruled out by blood culture. The latter is at times associated with hemoptysis and bilateral basal pulmonary changes. A careful examination of the heart, the basal pathology, and repeated negative sputum, will aid in diagnosis.

Mouth-breathing, at times, gives us a train of symptoms which is suggestive of tuberculosis. There is always in mouth-breathers a chronic pharyngitis and laryngitis. The inflammatory changes may extend to the trachea and large bronchi. There may be a dry, hacking cough, hoarseness, particularly in the morning; pain in the chest is not uncommon, nor is expectoration, shortness of breath, and general malaise. This is corrected if nasal obstructions are removed and the patient taught to breathe through his nose.

We should bear in mind that negative sputum with a very small amount of lung pathology is of little aid in a differential

diagnosis, but repeated negative sputums with much pathology in the chest is of great value in ruling out tuberculosis.

In conclusion, may I emphasize the fact that there is no sign or symptom by which we can recognize pulmonary tuberculosis in its incipency? Only, then, by cumulative signs and symptoms, brought out by a care-

fully taken history, thorough physical examination, laboratory tests, and X-ray plates, can we assure ourselves and our patient of a positive or negative diagnosis.

REFERENCES

- Lawrason Brown, M.D., and John M. Hayes, M.D., *Tice, Pract. of Med.*, vol. II.
John Potts, M.D., March issue of *Journal of Outdoor Life*.

PHYSICAL EXAMINATION OF SCHOOL CHILDREN*

By CHARLES E. DYER, M.D.
Roderfield, West Virginia

FIRST of all, let me express my appreciation for the honor of being designated to present the paper at this meeting. Since becoming a member of the Society, the social aspect has afforded me pleasure and a scientific profit. I have missed the monthly meetings since May, and have often felt a restless desire for them to begin.

The McDowell County Medical Society fully appreciates its responsibilities and opportunities, and has taken its position beside the best in the state. We look on it with deserving pride, and as individual members feel that its future is secure, and are resolved to put more into it than we take out.

I am also grateful for the subject for discussion, "The Physical Examination of School Children." It presents opportunities to render real and unselfish service in preventive, corrective, and advisory capacities. I keenly feel my limitations in an honest attempt to do it justice. As we discuss its possibilities, we wonder why it has received such meager consideration in the past. So far as I know, medical literature with a direct bearing on the subject is practically *nil*. So, if I am unable to combine commonsense with a likewise common medical knowledge, my efforts fail.

A few years ago some of the northern states, in this respect more progressive, adopted various plans of annual examination of public school children. Soon after the opening of each session examinations were

made and wherever offered a fair opportunity; the results have been gratifying, but human activity has its limitations, and it seems that this deserving problem has been sidetracked for other things, and its real merits have not received due consideration. The work being done in Welch, under the auspices of the Parent-Teachers' Association, is a step in the right direction. It deserves our encouragement and support.

Far be it from me to even intimate a criticism of our state educational department for not having adopted it. Our highly efficient public school system is an honor to the state. We, the medical profession, alone are to blame that this important consideration has not placed our school system farther on its way to perfection. Our colleges in this respect show no progress. They require the certificate as to moral character, but apparently are not interested in syphilis, tuberculosis, etc. But the successful corporation knows its value and the deserving consideration given physical examination of its employees is, in a measure, an index of success. Yea—a great adjunct to it. I wonder if it was ever discontinued after given a fair trial?

In the school examination, cards should be provided, properly printed, with space to note the normal or degree of abnormality—few will make a perfect score. The number of serious conditions found will be both surprising and mortifying. The examination, carefully made, requires little time, and there is no need for attempt at records for speed.

* Read before the McDowell County Medical Society, Welch, West Virginia, September 12, 1928.

The better the examiner's qualifications, the more gratifying the result; but any member of the ancient and time-honored allopathic school of medicine presents every requirement. Thus eliminating from consideration the other so-called schools of medicine, with their empty and barren "paths"; also the teacher, who can do the cause no good other than appreciate its merits, and strongly advocate it. Also the nurse—a great blessing—wonderfully trained, sympathetic and pains-taking—but her inspection can not be approved, and for her to attempt the major role would only confuse the public and disgust the pupils. Events out of the ordinary impress the pupils and are carried home and discussed around the family circle, to be approved or misunderstood; but the subject reaches all, and, in a measure, gives added impetus to our long-advocated annual examination of adults.

The children should be stripped to the waist, lined up as their names appear on the cards, then proceed with a systematic examination. The condition of the hair is often significant. Then look for eczema and other small things which are more often present than suspected or admitted, but the pupil or parent should be advised as to vigorous and rapid extermination. Their presence strikes at the heart of two of our ideals—cleanliness and sanitation. They question enlightenment, and offer evidence of ignorance; sorry, worthless mothers, and limited opportunities—but there is hope.

The examination of the eye and ear should be done with care, and requires more time than all the rest. If the hearing is below normal, and there is doubt as to the vision, and you do not feel capable of doing justice commensurate to its great importance, advise and urge proper relief. A surprising number, after an honest effort to hear the teacher, give up hope; and many have refractive errors which deny them seeing, at least with correctness, what is on the blackboard, and they go through high school tremendously handicapped by defective vision or hearing, or both.

The *Roanoke Times* of this date, September 1st, copies extracts from a bulletin released by Dr. C. B. Ransom, public health

officer (address not given). Of 2,000 school children, not a selected group, after careful examination by one thoroughly qualified, 45 per cent were found with defective vision to the extent of needing glasses, and 60 per cent could read normally on the vision test chart. Thirty-two per cent were definitely farsighted and consequently strained their eyes in near-work. The results you know. The percentage is so distressingly high as to be discouraging, but if any one questions me I am fortified with the clipping. Refractive errors in the extreme, sufficient to cause serious nervous disturbances and constant splitting headache, and actual and permanent injury to the health, certainly demand relief; but refractive errors of much less degree, corrected early in life, often permanently relieve the condition, the consideration being a short time in childhood against permanent injury and glasses for life.

It is with reluctance that I leave the ear and eye. They, alone, more than justify the procedure.

The teeth should be carefully inspected and defects corrected. But—above all—do not fail to impress the T. I. D., vigorous and proper method in the use of the toothbrush. Adenoids, if present in sufficient size to obstruct, and tonsils, if diseased or history of repeated attacks of tonsillitis, should be removed, but only when a complete operation that affords relief can be had. Note the thyroid. Enlarged cervical glands, often found discharging and tubular in character, offer their daily source of danger. The lungs, for incipient pulmonary tuberculosis. The heart, for valvular disease. The shape of the chest, the contour of the abdomen, hernia, orthopedic conditions, with special attention to the feet; skin disease, especially impetigo contagiosa, tinea, trichophytinæ and scabies. (Many years ago some one classified skin diseases into three classes: one third that could be cured by tar, one third by sulphur, and the remaining third the devil could not cure; but by using ammoniated mercury ointment many of the latter class can be cleared up as they are parasitic in origin.) Nervous and mental conditions should be borne in mind, with a special lookout for chorea. Psychological tests will, no doubt, be included in the future.

It is of the utmost importance to have a special study made of the undernourished or the underweight. No chronically sick child should attend school. The examination having been made and defects noted, then institute a follow-up process with a view to having the defects corrected. All to be done in an ethical manner and with due regard for the rights of the family physician.

Sanitary fountains now replace the common drinking cup. The germ-laden slate of a few years ago is no more, but children continue to put fingers, pencils, etc., into their mouths. They should be encouraged to break bad and adopt good habits.

In our time the profession has made advances in the eradication of communicable diseases that even stagger our own imaginations. Puerperal infection, typhoid fever, and smallpox can be considered as plagues of the past. Malaria, tuberculosis, yellow fever, and diphtheria are under control and on the run. Scarlet fever, measles, mumps, whooping cough are marked for early extermination. The infant death rate has been reduced to an astounding minimum. As compared with a few years ago, the span of life has been extended. Who can think lightly of the honor of being a member of such a noble profession, not in name, but sustained by every proof? But we are more interested in the new worlds to be explored, with their hidden mysteries unsolved, rather than putting into practice the knowledge at our command.

Infant and early child life receive much of our time, and deservingly so. But the anxious parents demand it. And for the same reason adults see the serious side of life and do not neglect their ills; but I am firmly of the opinion that the period embraced in school life is shamefully and astonishingly neglected. We know that the age of puberty is the critical period in life, and a time of all times that deserves and demands attention; but, due to false modesty and shameful neglect on the part of mothers, and the profession itself, it is entirely ignored—but this can not be excused. The problems girls try in vain to solve, and the mental suffering they undergo, often ending in suicide, loss of health, or complete nervous or mental breakdown, should receive deserving consideration.

Health, happiness, peace, contentment, education, and preparation for life, all require health as the first consideration. We should consider it a duty to give health lectures each year to school children, and acquaint them with the simple rules of personal hygiene. Humanity continues to pay its great toll to false modesty, treating certain parts of the body and certain features of life as a mystery, and, while there is reason in all things, I do not believe the profession has any license to practice false modesty instead of imparting scientific truths. Many girls and some boys remain in ignorance; others are not correctly, but conflictingly, informed. Normal life is no disgrace, no mystery, and all should know the truth. Its beauty should be stressed, but its pitfalls and dangers should not be overlooked.

We should give the superintendents and school boards the benefit of our knowledge of the merits of artificial immunity. One of the very latest serums, that for scarlet fever, should be used when an epidemic threatens. To my mind, this is the disease of childhood to be most feared. Toxin antitoxin has established itself. Pertussis serum I consider in effectiveness an outstanding achievement; but every child owes it to the state, as an appreciation of the wonderful school advantages, to wear the mark of honor, in the shape of a vaccination scar, on the arm, as a tribute to keeping smallpox practically extinct. Or to the memory of our predecessor, Edward Jenner, who suffered so much pain, sacrifice and humiliation, but who so nobly stood by his theory and contributed to the human race more than our minds can comprehend.

In closing, I want to say a word about carriers. Owing to the anatomical structure of the nose, it offers a perfect harbor for pathogenic germs, and far more children are carriers than we suspect. The *modus operandi* of communicable and contagious diseases present problems that have baffled us long enough. They should be made to give up their hidden secrets. The theory that germs can lay around for years, and suddenly initiate a serious epidemic and end often in inflicting such a distressing toll, has not greatly impressed me. Our great advance in disease prevention has, let us hope, forever changed the picture; but many of us will ever remem-

ber the distressing epidemics of childhood diseases. Their appearance follows no set rule—mild or severe, or mild, then suddenly severe to malignant; appearing suddenly and spreading with the rapidity of a prairie fire; lasting an uncertain length of time; ending stubbornly, or dying out as suddenly as their onset.

But we often find two or more cases of communicable diseases appearing at the same time and in widely separated neighborhoods; but, on investigation, are traced to the same schoolroom. We all recall "Typhoid Mary" and her wide range as a carrier. In my opinion such persons are the rule, and not the exception. In other words, my belief is that contagious diseases are due in large measure to human and animal carriers.

I am imposing my ideas, with not a single reference to medical literature, believing that you prefer selecting your own reading material; but, if my memory serves me right,

many pathogenic germs are always present in the mouth. This being true, they are in a state of moisture, which makes distribution and infection remote. But from the nose, in a dry state, they are readily thrown into the air, and come into contact with victims of lowered resistance, and the disease soon manifests itself, especially with bad ventilation and crowding. This was proven repeatedly during the late war, when in order to get troops to France in time they had to be packed almost sardine fashion in the badly ventilated vessels, and after a few days in France three or four cases of meningitis often developed, and if army laboratory technicians are reliable, the carriers were found. I believe the day is not far distant when carriers in schools will be found by the use of laboratory technique, and cleansed and cleared up.

Again let me say we are spending too much time awaiting the next achievement, instead of using the many means at our command. We shall not live to enjoy the millennium.

THE ANEMIAS OF CHILDHOOD *

By CLAUDE L. HOLLAND, M.D., F.A.C.P.
Fairmont, West Virginia

ANEMIA is classified as either primary or secondary. It is very doubtful if primary or pernicious anemia ever occurs in childhood. When a diagnosis of this type is made, it is probably due to unfamiliarity with the normal tendency of the blood, at this age, to revert to a younger type.

The incidence of secondary anemia is very common in infancy. Its frequency gradually diminishes with increasing age. The blood picture differs from that found in adults because of its normal peculiarities at this age.

The etiological factors are many. In early infancy it is most often due to a deficient supply of iron in the liver at birth. In later infancy it occurs more often as a result of an insufficient supply of iron in the food. Other causes are: hemorrhage, the acute infectious diseases, chronic infections such as syphilis and tuberculosis, chronic local infec-

tions as of tonsils and adenoids, scurvy, malaria, intestinal parasites, intoxication from chronic constipation, unhygienic surroundings with lack of sunshine, and many others.

Infants and young children become anemic much more quickly from an insufficiency of sunlight and improper food than older children and adults.

Some of the secondary anemias may be profound, as when the bone marrow is overwhelmed by the toxins of sepsis. In these the blood picture is very likely to simulate that of the primary type.

Secondary anemia in early life, except when due to sepsis, is caused by a disturbance or insufficiency in blood formation, instead of an increase in blood destruction. The blood picture will therefore show evidences of blood regeneration rather than blood destruction, the degree depending on the severity of the anemia. The younger the child the more

* Original paper.

marked the evidence of regeneration and the younger the blood forms found.

Secondary anemia in its different types and variations of severity can not be understood unless the principles of blood formation and destruction are kept in mind. It must be remembered that the different blood forms have their origin in different parts of the bone marrow, and may vary independently.

It should be remembered that the spleen may be enlarged in all types of secondary anemia, except in the mildest cases. This enlargement is not due to anemia, but from the same cause as the anemia. The same may be said regarding enlargement of the liver.

The peripheral lymph-nodes may show a slight general enlargement in this disease, and is not due to the anemia but to the disturbance of nutrition.

The blood pathology in secondary anemia is difficult to describe because of its great variability. I shall not attempt it.

The chief symptom of this condition is pallor. There may be some disturbance of nutrition, but often the body weight has suffered but little and the child appears quite plump. They are tired and listless, irritable and short of breath. The muscular power is diminished. The liver and spleen may be normal in size, as in mild cases, or moderately or greatly enlarged, depending on the severity of the disease and other allied conditions. The child may suffer from headache and the appetite is capricious. A cardiac murmur may be noted, the so-called hæmic murmur.

The treatment of this disease consists, first, in discovering and, if possible, removing the cause. When the cause is removed the tendency is usually to spontaneous recovery. In cases due to sudden and severe hemorrhage, transfusion may be necessary to save life. In other severe cases it is often of much value. Transfusion may be given intravenously, intraperitoneally, or intramuscularly, as deemed expedient. The blood should always be grouped.

The child should be placed under the best possible hygienic conditions with an abundance of sunshine and fresh air. The food

should be adequate and suited to the patient's individual needs and digestive capacity. It is usually advisable to hold the protein intake rather high. Iron, in suitable form, either by mouth or by needle, is time honored and valuable.

Recovery is usually slow and is dependent, first, on whether or not the underlying cause can be discovered and removed; second, on the severity of the process, and, third, on whether or not the full and intelligent co-operation of the child's attendants can be obtained.

Rheumatism Fakes

Rheumatism "cures" are among the most common of all "patent medicines" advertised by quacks as sure cures for the ailments of man. Rheumatism is a much-abused word, according to Dr. Arthur J. Cramp, director of the bureau of investigation of the American Medical Association.

Any passing attack of more or less ill-defined pain or discomfort is likely to be classified under the loose term, "rheumatism." Therefore the charlatans who sell rheumatism cures recommend their products for gout, neuralgia, and occasionally even for headaches, thus broadening the field for their nostrums.

Many cases of rheumatism are due to infection in some part of the body. Others may be due to misplacements or old injuries. Other cases in which the pain is in the knees or legs may be due to foot trouble. In acute attacks of rheumatism the heart may be seriously affected and careful nursing and prolonged rest may be more important than the administration of drugs. In such cases the nostrums may do actual harm. Dr. Cramp cites the use of salicylates, which are included in many patent medicines and which often have an unfavorable effect on the kidneys, even though they alleviate the symptoms of rheumatism. For this reason the salicylates should be used only under careful supervision of a physician.

TUBERCULOSIS ABSTRACTS

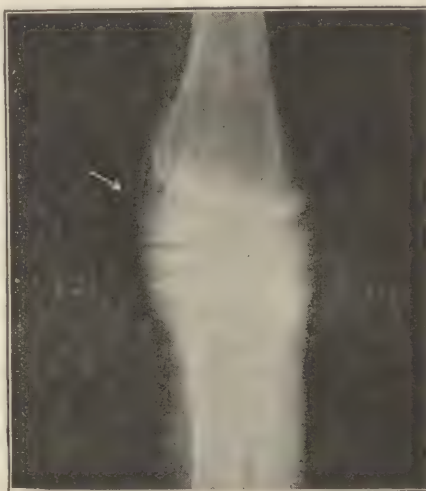
(Copy furnished by the West Virginia Tuberculosis and Health Association)

WHEN tuberculosis attacks the bones and joints of the child, its devastating effects are unusually cruel. Insidiously and surely, this enemy slows up the child's joyous activity, mars the grace and beauty of its movements, and finally cripples the lithe young body beyond repair. Who can resist the pathos of a *Tiny Tim*? But a better day dawns. The incidence of bone and joint tuberculosis is undoubtedly lessening. How much credit for this is due to the better production and pasteurization of milk is not altogether apparent, but surely it is considerable. However, in this country, by far the larger proportion of cases have been caused by the human type of tubercle bacillus. Moreover, methods of treatment are more effective. Surgery, valuable but no longer the sole reliance, is now being supplemented by general treatment in open-air institutions, by heliotherapy and by other means. Rollier has given us an entirely new conception of methods of treatment, and Humphries states: "In cases of surgical tuberculosis, it is difficult to restrain one's enthusiasm when speaking of heliotherapy or to refrain from quoting cases which would read as do the miracles." Tuberculosis of the joints and bones is still common and serious enough to warrant the most careful attention of every practitioner. Best results in treatment are attained through the cooperation of the physician and the surgeon. The various forms of light therapy are not to be applied hit-or-miss. They can work harm, and should always be administered under skilled and experienced direction.

Bone Tuberculosis a Children's Disease.—Tuberculosis of the joints is principally a disease of children. More than 85% of all cases, says Ritter, occur in children from two to ten years, and more than 50% at from two to five years. The disease involves the spine in about 40% of all cases, the hip in 30%, and the knee in 20%. Tuberculous dactylitis, or disease of a finger joint, is not infrequent and should not be overlooked.—*Handbook of Tuberculosis for Medical Students and Practitioners of Medicine*, John Ritter, M.D.

The Pathology of Joint Tuberculosis.—Bone and joint tuberculosis is secondary to tuberculosis of some other part of the body. The bone is attacked first, and then the joints. The process usually starts on the joint side of the epiphyseal line. The factors responsible for this are: end arteries, poor circulation, and traumatic injury.

The diseased area or focus may be encapsulated and eventually heal, or lie dormant, perhaps breaking out anew at some future time as the result of



TUBERCULOSIS OF KNEE JOINT

Courtesy of Maxwell Harlin, M.D., Lakeside Hospital, Cleveland, Ohio

trauma. Caseation often results, and then the disease may spread to the joint through the cartilage, or to the synovial membrane. Destruction of the joint structures follows. So-called cold abscesses and fistulous tracts are formed if the disease breaks through the bones and joints. Secondary infection, especially with the staphylococcus, sometimes occurs by way of the fistulous opening and may hasten the destructive process. There is very little attempt at new bone formation.—*Surgical Treatment of Tuberculosis of Bones and Joints*, E. J. Cummings, M.D., *Texas State Jour. of Med.*, November, 1927.

THE WEST VIRGINIA MEDICAL JOURNAL

JAMES R. BLOSS, *Editor-in-Chief* - - - - - Huntington

...ASSOCIATE EDITORS...

J. HOWARD ANDERSON
Marytown

WALTER E. VEST
Huntington

C. A. RAY
Charleston

HARRY M. HALL
Wheeling

THE JOURNAL issued on the first of each month. Entered as second-class matter January 1, 1926. Acceptance for mailing at special rate of postage provided for in Section 1103, Act of October 3, 1917. Authorized July 24, 1919.

Subscription to Members.....	\$2.00 Per Year
Subscription to Non-Members.....	\$3.50 Per Year
Single Copies.....	50 Cents

OFFICERS

President:
C. A. RAY.....Charleston

First Vice-President:
D. G. PRESTON.....Lewisburg

Second Vice-President:
E. L. ARMBRECHT.....Wheeling

Third Vice-President:
W. C. SWANN.....Huntington

Executive Secretary:
MR. JOE W. SAVAGE.....Charleston

Treasurer:
T. MAXFIELD BARBER.....Charleston

Delegates to A. M. A.:
JAMES R. BLOSS (1927).....Huntington
HENRI P. LINSZ (1927-28).....Wheeling

Alternates:
A. A. SHAWKEY (1927).....Charleston
HARRY M. HALL (1927-28).....Wheeling

COUNCILLORS

Chairman of the Council for 1928:
R. H. DUNN.....South Charleston

First District:
H. R. JOHNSON (1-year term).....Fairmont
C. G. MORGAN (2-year term).....Moundsville

Second District:
C. H. MAXWELL (1-year term).....Morgantown
C. H. HALL (2-year term).....Elkins

Third District:
JOHN FOLK (1-year term).....Bridgeport
I. D. COLE (2-year term).....Clarksburg

Fourth District:
J. E. RADER (1-year term).....Huntington
W. E. VEST (2-year term).....Huntington

Fifth District:
J. HOWARD ANDERSON (1-year term).....Marytown
H. G. STEELE (2-year term).....Bluefield

Sixth District:
R. H. DUNN (1-year term).....South Charleston
H. A. WALKUP (2-year term).....Mt. Hope

¶ All original articles for THE JOURNAL must be made to it exclusively. Communications and items of general interest to the profession are invited from all parts of the state. Notices of deaths, removals from the state, changes of location, etc., are requested.

¶ Our readers are requested to send marked copies of local newspapers containing matters of interest to members of the medical profession. Name of sender should be given.

CONTRIBUTIONS TYPEWRITTEN

¶ Contract with present printer specifies all articles, communications, etc., MUST BE TYPED.

ADVERTISEMENTS

¶ Advertising forms will go to press not later than the tenth of each month. All advertisements must conform to the standard established by the Council of Pharmacy and Chemistry of the A. M. A.

WOMAN'S AUXILIARY

Mrs. R. V. Shanklin, Gary, President; Mrs. T. H. Harris, Parkersburg, vice-president; Mrs. W. C. Swann, Huntington, secretary; Mrs. W. D. Simmons, Slab Fork, treasurer.

Councillors

Mrs. C. G. Morgan, Moundsville, first district; Mrs. Ralph Maxwell, Morgantown, second district; Mrs. H. D. Price, Parkersburg, third district; Mrs. J. R. Bloss, Huntington, fourth district; Mrs. A. G. Rutherford, Welch, fifth district; Mrs. E. S. DePuy, Beckley, sixth district.

Delegates to Woman's Auxiliary of A. M. A.

Mrs. R. V. Shanklin, Gary; Mrs. B. S. Preston, Charleston. Alternates—Mrs. George Jeffers, Parkersburg; Mrs. W. B. Scherr, Morgantown.

STANDING COMMITTEES

Medical Defense Committee

C. G. Morgan, Moundsville, Chairman; H. A. Walkup, Mt. Hope; H. G. Steele, Bluefield.

Committee on Scientific Work

O. B. Biern, Huntington, chairman; G. H. Barksdale, Charleston; A. G. Rutherford, Welch.

Public Policy and Legislative Committee

R. A. Ireland, Charleston, chairman; R. H. Walker, Charleston; James McClung, Richwood; C. R. Ogden, Clarksburg, D. A. MacGregor, Wheeling.

Committee on Medical Education

John N. Simpson, Morgantown, chairman; W. T. Henshaw, Charleston; W. S. Fulton, Wheeling.

Committee on Professional Relations

John R. Shultz, Charleston, chairman, (1-year term); A. G. Rutherford, Welch, (2-year term); W. R. Goff, Parkersburg, (3-year term); Hugh G. Nicholson, Charleston, (4-year term); E. P. Smith, Fairmont, (5-year term)

Workman's Compensation Committee

W. A. MacMillan, Charleston, chairman; J. Ross Hunter, Charleston; R. H. Walker, Charleston.

Committee on Public Health

David Littlejohn, Charleston, chairman; John Thames, Charleston; Will McLain, Wheeling.

Surgical Section


Robert King Buford, Charleston, chairman; B. I. Golden, Elkins.

Eye, Ear, Nose and Throat Section


I. D. Cole, Clarksburg, chairman; C. C. Jarvis, Clarksburg.

Hospital Association Officers

L. W. Lawson, Logan, president; J. E. Wilson, Clarksburg, first vice-president; R. A. Ireland, Charleston, second vice-president; J. S. Turk, Wheeling, treasurer.



EDITORIALS



Expenses Are Deductible

All members of the profession in the country will hail with considerable enthusiasm the news that physicians, in the computation of their federal income taxes, may hereafter deduct all traveling expenses incurred in attending meetings of medical associations and societies. The Board of Tax Appeals handed down this ruling in passing upon an appeal of Dr. Cecil M. Jack, of Decatur, Ill., on October 2, 1928.

Commenting upon the action of the Board of Tax Appeals, the *Journal of the American Medical Association* says: "The Commissioner of Internal Revenue has erred in denying the deductibility of such expenses. . . . The decision becomes final at the expiration of six months from its promulgation unless an appeal is taken to the courts before that time. The commissioner did not appeal, however, when the Board of Tax Appeals rendered similar decisions against him in favor of ministers and of chemists, in cases identical in every essential circumstance with the present case. In those decisions the commissioner officially acquiesced, without waiting for six months to expire, and there seems to be no reason why he should follow a different course now. Acquiescence seems more probable, too, since the board, in promulgating its decision in the present case, cited as precedents the very cases in which the commissioner had acquiesced, and repudiated as a precedent a decision of the board by which the commissioner undertook to justify his course. In that case, the board pointed out, it was necessary for the board to uphold the commissioner's denial of the physician's claim of the right to deduct traveling expenses, because the physician had not submitted proofs of the amounts expended. The only discoverable result that would follow an appeal by the commissioner is added expense

and trouble to the taxpayer and to the government, an additional case to clog the court calendar, and, pending a decision by the court, many thousands of payments unlawfully exacted of physicians under the guise of taxation, to be added to the tens of thousands of such payments already exacted, all of which the government may be called upon to refund."

The Commissioner of Internal Revenue first denied physicians the right to deduct traveling expenses in 1922. Since that time the physicians of the United States have probably paid half a million dollars into the treasury. If the courts are not called upon within the next six months to reverse the decision of the Board of Tax Appeals, then all of the money unlawfully paid to the government by physicians will be subject to refund.

The American Medical Association has pointed out that refund claims may be filed at once, without waiting for any further official action in the case quoted above. Claims for a refund of unlawful taxes paid during the years 1924 and 1925 must be made within four years from the date of payment, during the years 1926 and 1927 within three years, and during the year 1928 within two years.

All applications for refunds must be made on Internal Revenue Service form 843, and copies of this form may be obtained from any local collector of internal revenue. A separate form must be filled out for each year in which a refund is claimed, and all applications must be filed with the collector of internal revenue within whose district the refundable money was paid. Each application must show that it is based upon the decision of the Board of Tax Appeals in *Jack v. Commissioner of Internal Revenue*—Appeal of Cecil M. Jack, docket numbers 14995 and 17662, promulgated on October 2, 1928.

PRESIDENT'S PAGE



C. A. Ray



OUR Secretary conceived the idea of devoting one page of each issue of the JOURNAL to the publication of a message from the President, in which he may keep the membership informed of what is going on in Association affairs, suggest new ideas in governmental improvements, and discuss the monthly progress in scientific medicine and surgery. I heartily approve of the idea and dedicate it with my official valedictory. I wish to again express my appreciation of the honor you conferred upon me, and unhesitatingly declare it to be the crowning sheaf of my professional career. I have been devoted to the cause and have given it my best efforts.

The members have been very considerate in criticisms and their cooperation has made the work a pleasure. If I have accomplished anything, be it ever so small, that will continue the progress and bind the ties of brotherhood closer, I will feel that my work has not been in vain. For the same reasons I hope it will be your pleasure to extend to my successor a like support in his work of 1929.

This valedictory is by no means a "swan song," for I hope to be known as an active member for many years to come. I have long thought that a more enthusiastic interest would be created among the younger members by a few changes in the constitution, and I purpose introducing at the next meeting of the House of Delegates the following amendments, to be dealt with in the usual manner:

"Section 1. The officers of this Association shall be a President, three Vice-Presidents, an Executive Secretary, a Treasurer, twelve Councillors to be elected as provided in Section 2, and two Councillors-at-large who shall be the retiring President and his immediate predecessor.

"Section 2. The officers, except the Councillors, shall be elected annually. The terms of the Councillors shall be for two years, one half being chosen each year. No Councillor shall be eligible to succeed himself after four years as Councillor, but may be elected after two years' absence from the Council. All these officers shall serve until their successors are elected and installed.

"Section 3. The officers of this Association shall be elected by the House of Delegates on the evening of the first day of the annual session, immediately following the President's address.

"Section 4. The retiring President shall be Chairman of the Council for the year following his term of office, and shall not be eligible thereafter for any elective office of the Association except for delegate to the American Medical Association, or Board of Publishers."

Again thanking you as I return to the ranks in accordance with these suggestions, I am,

Sincerely and fraternally yours,

C. A. RAY.



NEWS NOTES OF COMPONENT SOCIETIES



Ohio County

The first fall meeting of the Ohio County Medical Society was held at the Wheeling Elks' Club at 8:30 o'clock on the evening of October 26. The scientific paper of the evening was presented by Dr. David Reisman, of Philadelphia, Pa., on the subject, "Diseases of the Gallbladder." His paper was ably presented and was concise, definite, and to the point. The paper was discussed by Dr. R. U. Drinkard and Dr. Harry M. Hall, both of Wheeling.

In spite of the fact that a banquet with 1,200 present was held at 6:30 o'clock on the same evening to open the drive for the Wheeling Hospital, the room was packed for the October 26 meeting of the Ohio County society. The program for the remainder of the year has already been completed, and if all of the meetings are as successful as the first the society will have a wonderful year.

A number of business matters were scheduled to come up at the meeting on October 26, but, due to the late hour of adjournment, they were carried over until November 9. Among other things, the society has under consideration the advisability of organizing a woman's auxiliary and of adopting an official insignia for its membership.

Dr. Paul Titus, of Pittsburgh, was the essayist at the November 9 meeting of the Ohio County Medical Society, which was held at the Wheeling Elks' Club. Dr. Titus talked on "Toxemias of Pregnancy," and his paper was discussed by many of the members present. Dr. Titus substituted for Dr. William A. Frontz, of Baltimore, Md., who was originally on the November 9 program but who wired at the last minute that he was unable to be present.

Dr. Gabriel Tucker, of the Chevalier Jackson Bronchoscopic Clinic, Philadelphia, was the essayist at the November 23 meeting, which was also held in the Wheeling Elks'

Club. His paper was presented on the subject, "Bronchoscopy in the Diagnosis and Treatment of Diseases of the Lungs," and was opened for discussion by Dr. A. J. Goodwin and Dr. A. K. Hoge, both of Wheeling.

H. W. BOND, Secretary.

Mercer County

The Mercer County Medical Society held its regular monthly meeting in the Municipal Building, Bluefield, at 8 o'clock on the evening of October 25. More than 200 persons were present, including about 55 members of the society, doctors from Tazewell, Summers, Raleigh, McDowell, and Wyoming counties; nurses from neighboring hospitals, and some of the laity in and about Bluefield.

The society was called to order by President W. H. Wallingford, who asked the secretary to introduce the speaker for the evening, who, in a very few words and complimentary remarks, introduced Dr. Harry Stuckert of the Jefferson Medical College, Philadelphia, Pa. Dr. Stuckert gave an interesting talk and instructive moving-picture demonstration on the prenatal and natal care of the parturient and pregnant woman.

This picture lasted one and one-half hours, and in it Dr. Stuckert showed where the expectant mother's history was written down, her pelvic measurements taken, blood pressure recorded, physical examination made, and urine taken and examined chemically and microscopically. It showed where she was advised as to her proper diet, exercise and other prenatal care to be taken, and where subsequent examinations were repeatedly made. These pictures showed a normal delivery without assistance, a delivery with assistance; where forceps were used, repairs of the lacerated perineum along with a classic and low cesarean sections made. One of the very interesting operations done was shown where Dr. Stuckert did a low cesarean sec-

tion under local novocain anesthesia, and had he not shown any more than this one picture it would have been well worth the time of any surgeon in this section to have seen.

Between reels, Dr. Stuckert gave every one present an opportunity to ask questions, which opportunity was taken advantage of by quite a number of the doctors present, and especially Dr. Wade H. St. Clair of Bluefield and Dr. B. S. Clements of Matoaka.

Every person present was repaid for attending this meeting, and many of the doctors have expressed themselves that it was one of the best meetings the society has ever held. Many of the nurses also stated that they derived a great deal of benefit in seeing the pictures and hearing Dr. Stuckert's talk on obstetrics.

The application of Dr. E. F. Peters, of Princeton, was received and turned over to the board of censors. The meeting adjourned at 10:15 o'clock P. M.

H. G. STEELE, Secretary.

Monongalia County

An interesting meeting of the Monongalia County Medical Society was held in the Junior High School library at Morgantown on the evening of November 8. The scientific paper of the evening was presented by Dr. Paul R. Sieber, of Pittsburgh, on the subject, "Acute Head Traumas." This paper was well received and was discussed by many of the members in attendance.

The next meeting of the Monongalia county society will be held on December 3, at which time the election of officers for the coming year will be held. Dr. H. V. King is the present head of the society, and his administration has been a very successful and valuable one.

G. R. MAXWELL, Secretary.

Raleigh County

The regular monthly meeting of the Raleigh County Medical Society was held at the home of Dr. and Mrs. Walter D. Simmons at Slab Fork on the evening of October 25. An excellent attendance turned out for this session and three splendid scientific papers were presented.

The essayists of the evening were Dr. Douglas Chapman, of Richmond, Va., on "The Management of the Essential Features of Impaired Kidney Function"; Dr. Milton C. Borman, of Montgomery, on "The Necessity of Early Diagnosis of Heart Disease"; and Dr. Elbyrne G. Gill of Roanoke, Va., on "Foreign Bodies in the Air and Food Passages." Dr. Gill's paper was illustrated with lantern slides. W. D. SIMMONS, Secretary.

Harrison County

At a regular meeting of the Harrison County Medical Society, held at St. Mary's Hospital, Clarksburg, W. Va., November 1, 1928, at 8:30 o'clock, and presided over by Dr. A. J. Kemper, Dr. T. Judd McBee of Morgantown, W. Va., read a paper on "Cystitis." The subject was dealt with in a very able manner by Dr. McBee and by Dr. H. E. Sloan, who discussed the paper.

At this meeting this society had the rather unique experience and pleasure of reinstating to membership a former president of the society. Dr. L. F. Kornman, formerly a practitioner of Clarksburg, but for several years in practice elsewhere, returned to Clarksburg some months ago and resumed practice here. We are glad to have this capable gentleman in our midst once more.

B. S. BRAKE, Secretary.

HOSPITAL NOTES

Charity Hospitals

(Illinois Central R. R. Co. v. Moodie (C. C. A.),
23 Fed. (2d), 902.)

The plaintiff, an employee of the Illinois Central Railroad Company, while an inmate of one of the company's hospitals, fell out of his bed, or fell after arising, and fractured his hip. The injury was not discovered for some thirty days or more, when it was too late to set the fracture without a serious operation, and the plaintiff was permanently injured. He sued the company and obtained a judgment. The defendant appealed to the circuit court of appeals of Illinois, seventh circuit. The evidence showed that the defendant maintained a hospital department,

with hospitals at various places for the treatment of its employees. The employees contributed 75 cents a month, which was deducted from their pay, to a hospital fund. The hospital fund was segregated from the other funds of the defendant and devoted exclusively to the hospital department and to medical treatment of employees for illness not incurred in their line of duty. The defendant was obligated to contribute to the hospital fund in case of a deficiency, but up to the time when the testimony was given there was a surplus in the fund. If an employee, or a passenger or a trespasser, was injured on the road, he received medical attention, and for this the company contributed the cost to the hospital fund. Hospitals maintained by the defendant were not operated for profit, though sometimes persons not coming within the classes enumerated were received in them and paid for the service rendered. An employee of the defendant was required to pay extra if he had a private room. The main contention of the plaintiff was that the defendant, the Illinois Central Railroad Company, had entered into an express contract to furnish him medical, surgical and hospital treatment, and hospital accommodations when needed, and nurses and physicians and a properly equipped hospital. He attributed his injury to the malpractice of the physicians and nurses employed by the defendant and the failure of the defendant to have in the hospital a portable roentgen-ray machine. The court concluded, however:

"It may be conceded for the purposes of discussion that there was a contract by which defendant agreed to furnish medical treatment and hospitalization to plaintiff, and that the nurses and doctors in charge of plaintiff when he was injured were negligent, but that does not necessarily establish liability in the defendant for the consequent injury.

"In the case of *Union Pacific Ry. Co. v. Artist* (C. C. A.), 60 F. 365, 23 L. R. A. 581, in a well-considered opinion by Judge Sanborn, the rule is stated as follows:

"The rule is that those who furnish hospital accommodations and medical attendance, not for the purpose of making profit

thereby, but out of charity, or in the course of the administration of a charitable enterprise, are not liable for the malpractice of the physicians or the negligence of the attendants they employ, but are responsible only for their own want of ordinary care in selecting them.'

"In that case the facts were practically the same as in this case, and the railroad company was held to come under the designation of a charitable institution for the purpose of fixing liability."

Considering that a portable roentgen-ray machine was available if needed, the court concluded that the fact that the hospital was not equipped with one would not show a failure to furnish the plaintiff with modern and necessary hospital equipment. The judgment of the court below was reversed.—*Journal A. M. A.*, November 3, 1928.

Successful Drive

The drive to raise \$350,000 for the Wheeling Hospital, which was instituted with a banquet on the evening of October 26 with more than 1,200 in attendance, was concluded with a Victory dinner on the evening of November 6, at which time the sum of \$550,310 was reported as having been subscribed. There were 1,300 persons present at the Victory dinner to cheer the news that the campaign had been more than \$200,000 oversubscribed.

The sum was required for the purchase of new equipment, for the lifting of a financial burden against the hospital, and for remodeling and reconstruction of antiquated and inadequate portions of the hospital building in North Wheeling. Lacking an endowment fund of any kind, the hospital management has had a long, hard struggle to reduce a debt which now is \$137,000, occasioned by the construction of the last wing 15 years ago and by the acquisition and remodeling of the nurses' home in 1921.

From Other Journals

Comfort to Quackery

The federal officials whose business it is to prosecute the exploiters of medical fakes and frauds have for years complained that the government is much hampered by its legal assaults on quackery by the fact that physicians of standing will sell their expert testimony to the nostrum exploiters. Regardless of the nature of the evidence or opinion, the appearance of a reputable physician on the side of the quack may lead a jury to believe that the nostrums under consideration are worth while and that the claims made for them are true.

Recently a hearing, or, rather, a series of hearings, has been held before the Federal Trade Commission in the matter of a quack "obesity cure" known as "Marmola," a nostrum with an interesting background. It is sold by one Edward D. Hayes, who at the present time does business under the trade name "Raladam Company." The stuff used to be put out by the "Marmola Company," which was another trade name used by Hayes, but in the latter part of 1926 the postal authorities were about to issue a fraud order against the Marmola Company, when Hayes submitted an affidavit declaring that he would absolutely discontinue the Marmola business on April 1, 1927. Hayes did discontinue the sale of Marmola through the mails at that time, but created the Raladam Company, which continues to sell Marmola through the retail drug stores.

Edward D. Hayes has, for a quarter of a century, been quacking it. More than twenty years ago he was connected with a fraudulent outfit known as the "Dr. Knapp Medical Company," which was in the "weak-men-cure" business. He was also connected with the "Dr. Rayner Medical Company," which was practically identical with the Knapp concern. These concerns published advertisements that were so filthy that they were alleged to have violated the federal law against obscenity. The concerns were declared frauds by the

government and put out of business in 1904. Later, Hayes brought into existence the "Interstate Remedy Company," another "weak-men-cure" outfit. This was exposed in detail in The Journal in October, 1911, and in April, 1914, the government issued a fraud order against the Interstate Remedy Company. Later, indictments were returned against Hayes, who was arrested in June, 1914, and pleaded guilty and received a fine of \$5,000. In addition, the concern had to turn over to the government, to be destroyed, between seven and eight tons of an elaborate system of card-index files, containing more than 500,000 names of "suckers." This was converted into pulp.

Last February the Federal Trade Commission issued its complaint against the Raladam Company and, since that time, has held hearings in Chicago, Detroit, and Washington, D. C. Marmola, according to the exploiters, has essentially the following composition:

Desiccated thyroid	½ gr.
Extract of bladderwrack (<i>Fucus vesiculosus</i>)	1 gr.
Extract of phytolacca	½ gr.
Extract of cascara sagrada	¼ gr.
Phenolphthalein.....	¼ gr.

Reports have come in to The Journal at various times of the harmful effects that have followed the indiscriminate use of Marmola, the symptoms being those of thyroid intoxication. This is not to be wondered at, when it is known that the instructions for the use of Marmola result in two grains of desiccated thyroid being taken daily by women who are wholly ignorant of the potency of thyroid and who naturally assume that products sold for self-medication are quite safe to use. For the government, Drs. Charles A. Elliott, Solomon Strouse and Rollin T. Woodyatt testified at the first Chicago hearing as to the effects that were likely to follow the use of Marmola by the laity. Each of these three men offered, in the interests of the public health, to testify (and did testify), each of them spending practically a half day to put himself at the service of the government in this matter. Not one of these three men charged the government a cent for his valuable services; they donated both their time and their special knowledge.

Some weeks later a second Chicago hearing was held, at which time Edward D. Hayes had expert witnesses to testify, in effect, that Marmola was a scientific (?) preparation and that it was harmless when used according to directions. The men that testified to this effect were:

Robert W. Keeton, M.D., Chicago.

Alonzo C. Tenney, M.D., Chicago.

Frank L. Stone, M.D., Chicago.

George W. Funck, M.D., Chicago.

Harold S. Hulbert, M.D., Chicago.

Samuel F. Haverstock, M.D., Detroit.

Each of these men is a member of his local medical society and, through that, has qualified as a Fellow of the American Medical Association. Here, then, is a sweet spectacle: the American Medical Association attempting to protect the public against quack remedies, while individual members testify in behalf of the exploiters of quack remedies!—*Journal A. M. A.*, November 3, 1928.

GENERAL NEWS

Dr. Moore Made President

Dr. Thomas W. Moore, of Huntington, was elected president of the Southern Medical Association at its annual meeting in Asheville, N. C., on the evening of November 14, 1928. He will succeed Dr. Wm. R. Bathurst,



Dr. T. W. Moore, of Huntington, newly elected president of the Southern Medical Association.

of Little Rock, Ark., as head of the organization embracing 17 southern states. Other officers selected at the Asheville meeting were Dr. Paul H. Ringer of Asheville, first vice-president; Dr. F. J. Underwood, state health officer of Mississippi, second vice-president; C. P. Loranz, secretary-manager, and Dr. M. Y. Dabney, editor of the *Journal*. Miami, Florida, was selected as the 1929 meeting place.

The elevation of Dr. Moore to the presidency of the Southern Medical Association comes as a distinct honor both to Dr. Moore and to the medical profession in West Virginia. It marks the first time in the history of the southern organization of doctors that a West Virginian has been selected for the presidency. Dr. Moore served as president of the West Virginia State Medical Association in 1910 and has always been an active worker in the state organization and the Cabell County Medical Society.

Following his election in Asheville, a grand ball was held at the Kenilworth Inn there in honor of Dr. Moore and Dr. Bathurst, whom he will succeed. Dr. Bathurst will continue to serve the Southern Medical Association in the capacity of chairman of the board of trustees.

Dr. Moore has a lengthy record of service in the profession in West Virginia, Ohio, and Kentucky. He is an eye, ear, nose and throat specialist, and, as such, has served as secretary, vice-chairman and chairman of the section of the Southern Association.

Secretaries' Conference

The annual conference of secretaries of constituent state medical associations of the American Medical Association was held on November 16 and 17, 1928, at the A. M. A. headquarters in Chicago. The West Virginia State Medical Association was represented by Mr. Joe W. Savage, executive secretary, and by Dr. Harry M. Hall, of Wheeling, associate editor of the West Virginia Medical Journal.

Dr. T. B. Throckmorton, of Des Moines, Iowa, was chosen as permanent chairman of the meeting, and the first address was made by Dr. M. L. Harris, president-elect of the American Medical Association. Other speakers on the two-day program included Dr. Edward B. Heckel, chairman of the board of trustees of the A. M. A.; Dr. N. P. Colwell, secretary of the council on medical education and hospitals of the A. M. A.; Dr. H. H. Shoulders, secretary of the Tennessee State Medical Association; Mr. J. G. Crownhart, secretary of the Wisconsin State Medical Association, and Dr. J. G. Ricker, secretary of the Vermont State Medical Society.

Health Workers Meet

The third annual meeting of the West Virginia Public Health Association and Health Officers' Conference was held in Morgantown November 26-29.

Among the prominent speakers who addressed the meeting were Dr. E. L. Bishop, health commissioner of Tennessee; W. F. Walker of New York City, field director of the American Public Health Association; Dr. C. A. Ray of Charleston, president of the West Virginia State Medical Association; Dr. Arthur D. Knott, director of the full-time health unit of Parkersburg and Wood county; Dr. W. H. McLain of Wheeling, who has done outstanding work as health officer of Ohio county.

Subjects of interest vital to the health of the state were discussed, including the decrease of typhoid in West Virginia, the increase in counties having full-time health service from one in 1920 to fourteen in 1928, the lowered infant mortality rate and the need for improved sanitary conditions in many communities. A report on the milk

conditions in the state since the adoption of the standard milk ordinance by a number of cities was made by E. S. Tisdale, state sanitary engineer.

Dr. W. T. Henshaw, state health commissioner, presided at the sessions on Tuesday, Wednesday and Thursday; Dr. David Littlejohn, president of the West Virginia Public Health Association, presided at the sessions on Monday, which were devoted to the discussions of problems of the non-professional health worker. Mrs. Dorsey Potter, of Clarksburg, is chairman of this section.

An exhibit of health work was presented by the bureau of public health education in the exhibit hall at the Elks Club. All sessions were held in this building.

Caudy-McCarthy

Announcement has been made of the marriage, on October 6, 1928, at Zanesville, Ohio, of Miss Helen Jane McCarthy, of Nelsonville, Ohio, to Dr. Gilbert S. Caudy, of Tioga, Nicholas county. The bride is a graduate nurse of Grant Hospital, Columbus, Ohio. The groom is a graduate of West Virginia University and Jefferson Medical College of Philadelphia. Dr. and Mrs. Caudy are making their home at Tioga.

Civil Service

The United States Civil Service Commission announces the following open competitive examinations:

Medical Advisor and Assistant Medical Advisor.—Applications for medical advisor and assistant medical advisor must be on file with the Civil Service Commission at Washington, D. C., not later than December 29. The examinations are to fill vacancies in the Food, Drug, and Insecticide Administration, Department of Agriculture, for duty in Washington, D. C., or in the field.

The entrance salaries range from \$3,800 to \$4,400 a year for medical advisor, and from \$2,600 to \$3,100 a year for assistant medical advisor. Higher-salaried positions are filled through promotion. Competitors will not be required to report for examination, but will be rated on their education, training, and experience.

Full information may be obtained from the United States Civil Service Commission, Washington, D. C., or from the secretary of the United States Civil Service Board of Examiners at the post office or custom house in any city.

Hospital Meeting

The third annual meeting of the Hospital Association of West Virginia will be held in the assembly room of the Kanawha Hotel, Charleston, W. Va., starting at 10 o'clock on the morning of December 3, 1928. The meeting will be concluded with the banquet on the same evening. More than fifty members and hospital representatives are expected to be in attendance for this session, and an excellent program has already been arranged and mailed out.



Matthew O. Foley, of Chicago, who will be the principal speaker at the meeting of the Hospital Association of West Virginia in Charleston on Monday, December 3, 1928. Mr. Foley is editor of *Hospital Management*, and is one of the nation's foremost authorities on hospital questions.

Matthew O. Foley, of Chicago, editor of *Hospital Management* and one of the best-informed hospital men in this country, will be the principal speaker at the banquet, and, in addition, will take part in the round table discussions during the afternoon session. Other banquet speakers will be Dr. W. A. McMillan of Charleston, Dr. William R. Laird of Montgomery, president of the Central Tri-

State Medical Society; Dr. J. H. McCulloch of Beckley, Dr. J. E. Wilson of Clarksburg, and Dr. James McClung of Richwood.

The program will open with an address of welcome by Mayor W. W. Wertz of Charleston, which will be followed by the president's address by Dr. L. W. Lawson of Logan. The morning session will be concluded with a paper by Dr. Harry M. Hall of Wheeling, president-elect of the West Virginia State Medical Association.

Honorable C. L. Heaberlin, workmen's compensation commissioner of West Virginia, will open the afternoon session with a round table discussion on "Relation of Hospital Service to Permanent Partial Disability." He will be followed by Dr. Charles E. Holzer, of the Holzer Hospital, Gallipolis, Ohio, who will talk on "A Budget System as Applied to the Small Hospital." Dr. R. A. Ireland, of Charleston, will conclude the afternoon session by conducting a round table discussion on "Pending and Prospective Legislation of Interest to West Virginia Hospitals." Dr. Ireland is chairman of the committee on legislation of the West Virginia State Medical Association and is well informed on the many important measures that are expected to come up at the next legislative session.

The annual meeting here will be presided over by Dr. L. W. Lawson, president of the Hospital Association of West Virginia. Dr. C. A. Ray of Charleston, president of the West Virginia State Medical Association, will serve as toastmaster at the annual banquet.

William C. Etzler, M.D.

Dr. William C. Etzler, former city health commissioner of Wheeling and a prominent member of the West Virginia State Medical Association, died at his home on the morning of November 5, following a sudden heart attack. Dr. Etzler was 58 years of age at the time of his death and is survived by his wife and one daughter, Martha Elizabeth Etzler, of Wheeling.

The deceased was born in Kirkwood, Ohio, on January 11, 1870, and with his family moved to Wheeling at the age of two years. He attended Linsly Institute and was later

graduated from the University of Pennsylvania with the degree of Doctor of Medicine. He practiced his profession in Pittsburgh until 1898, when he returned to Wheeling. He served three terms as city health commissioner of Wheeling, the first from 1903 to 1904 and the second and third from 1913 to 1917.

Funeral services for Dr. Etzler were held on the afternoon of November 7 from the Thompson Methodist Episcopal Church, of which he was a member. Among the honorary pallbearers were Dr. John Gilmore, Dr. Robert J. Reed, Sr., Dr. J. O. Howell, and Dr. E. B. Plant. Interment was private.

Dr. Etzler first joined the Ohio County Medical Society and the West Virginia State Medical Association in 1909 and continued his membership each year until his death. He was well known throughout the Wheeling district and had a host of friends in the profession in all sections of the state.

Pending Legislation

The Bureau of Legal Medicine and Legislation of the American Medical Association has just issued through a recent bulletin a summary of bills now pending in Congress of interest to the medical profession. These bills may come up for consideration during the session that assembles on the first Monday in December. The bills indicated "H. R." bills are referred to House of Representative committees and those indicated "S" are referred to Senate committees.

H. R. 13412. *A bill to regulate the promulgation of regulations in certain cases, with reference to alcohol and narcotics. Introduced by Representative Graham of Pennsylvania. Pending before the Committee on the Judiciary.* The purpose of this bill is to require that, except in actual emergency, as determined by the President, no regulation under federal prohibition or narcotic laws, of general application to the public, that is enforceable under penalty, be promulgated by an administrative officer, unless prior to its promulgation notice has been given of an intent to promulgate it and opportunities afforded for protest and hearing. After the promulgation of any such regulation, it is to

be published in a manner whereby the public may be informed of its promulgation, and a reasonable time is to be allowed to elapse before it becomes operative, to allow persons affected by the regulation to arrange to conform with it.

The ultimate object of this bill is to insure to administrative officers adequate knowledge of the subjects on which they are to legislate before they promulgate any regulations that they are authorized to issue. To insure this knowledge, they are to be required to submit matters of prospective legislation to those who may be affected by it, in time to enable the promulgating officer to have the benefit of the advice of such persons before he legislates. This will be a safeguard against arbitrary and unintelligent action. Another object of the bill is to insure to those who are affected by any regulation that may be promulgated adequate notice of its promulgation and reasonable time to arrange for compliance with it.

This bill has the support of the American Medical Association, and every effort should be made to acquaint senators and representatives with the need for its enactment before they resume their legislative duties in Washington in December.

H. R. 11998. *A bill to prohibit experiments upon living dogs in the District of Columbia or in any of the territorial or insular possessions of the United States, and providing a penalty for violation thereof. Introduced by request, by Representative Frear of Wisconsin. Pending before the Committee on the Judiciary.* This bill aims to prevent the use of living dogs for experimentation or operation in any manner, in any jurisdiction under the exclusive legislative control of Congress. The bill is designed, it is understood, as an entering wedge, to be followed, if it is enacted, by legislation to prevent experimentation on other animals. Incidentally, the enactment of such legislation by Congress would presumably be urged as a reason for the enactment of similar legislation by the legislatures of the several states.

If enacted, this bill will hamper scientific research for the prevention and cure of disease in man and animals. Its enactment is therefore opposed by the American Medical

Association. Senators and representatives should be informed as to the vicious character of this legislation before they resume their legislative duties in December.

The calendars of the House of Representatives' Committee on World War Veterans' legislation and of the Senate Committee on Finance are crowded with legislation designed to extend the free medical and hospital service for diseases and injuries not of service origin, now provided at the expense of the federal government for persons who are by statute classed as veterans, and for enlarging the class of persons to whom such free service is to be given. The American Medical Association has taken no action with reference to any of the bills named under this heading. It has gone on record, however, as opposed to free medical treatment, at public expense, of persons who are suffering from diseases and injuries that did not originate in and have not been aggravated by any service rendered to or on behalf of the government and who are able themselves to pay for medical service.

Council Accepts Optochin

In compliance with the request of the Council on Pharmacy and Chemistry, the name "Numoquin" has been changed to Optochin."

Optochin is used not only in the treatment of pneumonia but also in such conditions as pneumococcic meningitis and pneumococcic serpiginous ulcers. In the treatment of pneumonia it is administered by mouth.

The theory upon which the treatment of pneumonia with optochin base is founded has evolved from the results obtained by a large number of investigators, and is outlined as follows:

The maximum bactericidal power of the remedy must be maintained continuously for a definite period—one to three days—employing the minimum quantity of the remedy for the purpose. It was found in practice that, provided optochin base is used, and given in doses of four grains every five hours, day and night, and, further, provided the treatment is begun within 24 hours, or at least not later than the second day after the onset of the disease, the results are all that could be

wished. The fever abates rapidly, the course of the disease is shortened and rendered milder, and the patients experience a sensation of euphoria, while the appetite and general condition improve.

The base is used because, being practically insoluble in water, it is but slowly taken up into the blood circulation. With every dose of optochin base about five ounces of milk are given. The milk prevents the too rapid formation of the more soluble optochin hydrochloride by the action of the hydrochloric acid secreted, and thus assists in maintaining a uniform optimum concentration of the remedy in the blood. No other food or drink is given during the three days' treatment.

West Virginia Death Rate

The 1927 death rate for West Virginia was 1,002 per 100,000 population, as compared with 1,087 in 1926. This decrease in 1927 is largely accounted for by decreases in the death rates from influenza (from 45 to 25 per 100,000 population), pneumonia, all forms (from 83 to 65), diarrhea and enteritis, under two years (from 75 to 60), measles (from 18 to 5), typhoid and paratyphoid fever (from '7 to '3), and tuberculosis, all forms (from 77 to 74). Increases are shown in 1927 in the death rates from cancer (from 55 in 1925 to 50 per 100,000 population), whooping cough (from 18 to 20), automobile accidents (from 14 to 18), and mine accidents (from 36 to 39). The estimated population in 1927 was 1,696,000, and in 1926 was 1,669,000.

Undulant Fever

Undulant fever, a disease contracted from cattle and hogs which are infected with contagious abortion, is being more widely recognized as a problem of considerable importance from a public health standpoint. A number of cases of this disease have been reported from various states.

The disease of contagious abortion is quite prevalent among cattle and hogs throughout the country. Persons who drink raw milk from infected cattle or who handle hogs or cattle that are infected are likely to contract the disease. The name, "undulant fever," is

applied to the disease because the attacks of fever come in waves or undulations. The disease was first recognized on the island of Malta in the Mediterranean, and it was thought for a time that it was spread only through the milk of goats. It is now known, however, that the disease may be contracted from cattle and hogs. The disease is not only disabling but extremely chronic in duration. The patient may be ill for two or three years before any improvement is noted.

Important studies made by Miss Alice G. Evans, a bacteriologist of the United States Public Health Service, have shown the relation between this condition in human beings and contagious abortion in cattle. In certain states it has been said that undulant fever is of greater importance from the standpoint of public health than is typhoid fever. Many cases are contracted from infected milk. Fortunately, however, efficient pasteurization readily destroys any of the germs of this disease which may be present in milk. The chief precautions, therefore, are the use of pasteurized milk and care when coming in contact with animals known or suspected to be infected with contagious abortion. In a series of cases of undulant fever recently studied among adults living on a farm, there were 39 males and 6 females; six of the male cases are known to have derived their infection from hogs.

Persons who are employed on farms or in packing houses are likely to contract the disease through exposure in their work; other persons may contract it through consumption of raw milk.

COMMUNICATIONS

Editor, West Virginia Medical Journal:

I have read with interest the editorial in a recent number on "Law Enforcement," relative to illegal practitioners.

I heartily approve any plan that promises to prevent, even in a small measure, the injustice and injury done to the people of our great state by illegal and irregular practitioners of medicine.

The proposition of a full-time attorney, employed by the state, to prosecute these

people, would doubtless help to some extent, but I am very skeptical as to its being the solution of the difficulty. The reason he would fail is simple enough. Public sentiment is with the illegal and irregular practitioner. Why? Because the general public is not enlightened along this line. The people have not seen the thing as it is.

Some years ago our county society, led by our county health officer, made a determined drive in this direction. We had the sympathy and cooperation of the judge and state's attorney. We got one conviction. At a later date we got one more conviction. There were, and still are, other illegal practitioners among us, and, although the matter was presented to the grand jury, they, in spite of the law, the evidence, and their oath, declined to bring in an indictment. There have been other instances of grand juries pursuing the same course in other parts of the state. How, then, can an attorney hope to succeed in this matter when he finds a grand jury assuming the prerogative of a sovereign state?

You have pointed out that our medical practice act is good. It might, however, be improved upon. My belief is that the evil will never be corrected by legislation nor will it be corrected by prosecution, though it may be lessened by these means.

I am persuaded that the only hope of ultimate success lies in a long, thorough, and comprehensive campaign of education. The public press is not with us in this for the simple reason that it derives revenue from the advertising irregular and none from us because of ethical considerations.

It occurs to me that the state council on public health might well devote a larger part of its endeavor to this matter in cooperation with the state association and the various component county societies.

It has been charged that the objections offered by the regular physicians against the irregulars is based solely on the mercenary principle that the latter make inroads into the field of endeavor of the regulars.

It can be shown, however, in the last analysis, that this is not true. It can be further shown that many persons in the early stages of various maladies, that are easily remedied when recognized and properly treated, fall

into the hands of these pretenders. The result is that much valuable time is lost and money spent. Finally the patient reaches a regular physician who finds that the condition has progressed until it requires prolonged treatment or extensive operation, and may have advanced beyond all possibility of ultimate remedy, leaving the patient a semi-invalid or possibly hopelessly facing death. Many of these conditions might have been corrected with little trouble and expense had the proper treatment been instituted at the right time.

I lately had brought to my office a bright-eyed little girl of six years. The reason for seeking help was because of weakness and recurrent pains in the legs, coupled with shortness of breath on very moderate exertion. She gave a history of repeated attacks of tonsillitis over a period of two years, also recurrent pains in the joints of her extremities. Physical examination revealed a bright, anemic, undernourished child with markedly diseased tonsils and a heart at least one and a half times its normal size, with marked valvular deficiency. She had been getting "adjustments" by a well-known chiropractor for a year and a half.

More recently a boy of four years was brought in with a "stiff neck" of four months' duration. The roentgenographic report was "partial destruction of the bodies of the second and third cervical vertebrae with angulation, probably tubercular in origin." This child had received "adjustments," having his "neck twisted," by the same chiropractor for two and a half months.

The condition was explained to the parents and the case referred to an orthopedist in Pittsburgh, who fixed the neck in an apparatus so as to render it as nearly immovable as possible. I could recite similar instances *ad nauseum*. It is needless to remark that the parents of the two children mentioned are now sufficiently well educated as to the value of "chiropractic."

Your suggestion that the profession give attention to the selection of legislators is good and timely, but the personnel of legislatures changes and with each new group there is likely to be changes or modifications of the law, so that we will be forever building or laying up fences that have been torn down.

I have personally spent some time in missionary work with members of that body, and about the time I had them partially with us my work was brought to naught by their failure to be re-elected and returned to the statehouse.

Can we not devise some plan by which this matter can be taken directly to the people?

Sincerely,

CLAUDE L. HOLLAND.

Fairmont, W. Va.

* * *

Editor, West Virginia Medical Journal:

It may be of interest to the physicians of the state to know that the tuberculosis antigen, recently discussed in the columns of this Journal (West Virginia Medical Journal, Vol. 24, No. 7, July, 1928), is now undergoing experimental test at the Hopemont Sanitarium. Study has not yet progressed to the extent warranting conclusions as to its possible value, but the results will be made available in due time.

For the most part unfavorable reactions are very few, and these consist only of headache, nausea, and a temporary prostration. Most of these reactions occur after the dose has been increased to $\frac{3}{4}$ or 1 c.c., and could undoubtedly be avoided by a more gradual increase of dosage.

From several local cases outside the sanitarium we have had some very favorably reported results, particularly in scrofula, white swelling and adenitis.

On the whole it appears that the treatment is not harmful, and that favorable results have followed its use in a number of cases. Of course it must be remembered that the cases at the sanitarium are largely acute or old chronics, which furnish a very severe test of the antigen. We would appreciate opportunity of testing the antigen on some cases in the earlier stages in which there might be chance of halting the progress of the infection before caseation or calcification has set in.

Dr. G. F. Evans has recently reported that Dr. Mason ran a comparative test of the antigen together with old tuberculin on six cases, and that the reaction to the antigen checked with the old tuberculin reaction in every case. This, it would seem, would imply a similarity of the antigen to tuberculin.

Having the stimulative properties of tuberculin, without its toxic properties, would tend to support our hope that its use may be beneficial.

We have recently received a letter from Dr. L. Negre, of the Pasteur Institute, of which I quote a careful translation:

"Institut Pasteur,
25 rue Dutot.

"Dr. J. N. Simpson and R. S. Spray.

My dear colleagues:

"Dr. Boquet and I wish to thank you particularly for the monograph you have sent us.

"We are greatly pleased that you have been able to confirm the results that we obtained in the animals treated with the methylic antigen.

"We hope that your experimentation will induce the physicians of the United States to try this therapy in human tuberculosis, as Dr. Hall has done. They will see the very remarkable results that can be obtained with this substance, if they will use it correctly and for long periods.

"In pulmonary tuberculosis it seems more and more evident that it is preferable to use weaker doses than we have heretofore indicated, and always to use the 'dilute' form of the antigen.

"We would be very grateful to you if you will keep us informed of what is done with the methylic antigen, and we beg you to accept our appreciation of your work and the assurance of our devoted interest in yourselves.

(Signed) "L. NEGRE."

I believe that the point he mentions, of the continued low dosage in the acute cases, is important, in that the reactions will be slight and an increased tolerance can be slowly developed. We hope that widening interest in this work will build up a mass of data which will prove this treatment of value.

Very truly yours,

ROBB SPALDING SPRAY.

Morgantown, W. Va.

The Tattoo Nuisance

Tattooing is probably as prevalent now as it has ever been, although among modern races the tattooer has lost caste and his art has deteriorated, Dr. Marvin D. Shie says

in an informative article in *Hygeia* for December.

Having its origin as an expression of grief among savage tribes, tattooing gradually came to represent religious beliefs and the practice persisted well into the Christian era. Among some tribes warriors were painted with hideous designs to inspire fear in the foe.

The Greeks and Romans used to tattoo criminals, slaves, and prisoners of war. Identification through tattooed tribal marks developed to such a point that a man was often a human totem pole with his entire family history on his person.

Among the other motives Dr. Shie lists as responsible for a man's submitting to such a painful operation are personal valor, adornment, superstition and reaction to mass psychology. Many have themselves tattooed to show that they are "regular guys." It is possible nowadays to obtain permanent pink cheeks or cupid's bow lips. Among superstitions a blue spot on each temple is supposed to ward off headache. Soldiers and sailors have themselves tattooed mainly because it is being done by their friends in the service.

Occasionally people are accidentally tattooed by powder burns or debris such as cinders.

Tattooing was first done by rubbing coloring matter into wounds. Later chisels and mallets were used. Then needles were adopted and this method has persisted unchanged for many years except for the introduction of the electric needle.

Many complications have arisen from unhygienic practices in tattooing. Gangrene, lockjaw and blood poisoning have caused death, and cases of tuberculosis, leprosy and syphilis have been traced to the tattooer. More sterile methods are now used by some operators, but because much tattooing is still done in carnivals, street fairs and in underworld dives, the hazards are much the same as they were a hundred years ago.

Because of the dangers of spreading disease, tattooing has been prohibited in Japan for many years. But the United States has no federal law regulating it.

Only three cities, Cleveland, San Francisco and Norfolk, prohibit or regulate it in any way.

Ephedrin in China

Chinese in the famine regions, picking a medicinal herb by the roadside in return for food, may be the means of relieving the sufferings of large numbers of men and women in other parts of the world, according to reports reaching America from Peking.

The herb, called ephedra (*ma huang*, in Chinese), has of recent years been employed considerably by foreign druggists for making ephedrin, a drug indicated for asthma and bronchial complaints. In cooperation with the Peking Union Medical College, the Mosse Memorial Hospital, the North China Diocesan Relief Fund, and other institutions, the China International Famine Relief Commission has adopted the herb-picking scheme of "labor relief" and it is proving helpful.

The Peking and Tientsin *Times*, in a recent issue, describes the plant and tells of the manner in which the relief work is carried on:

"The herb, which grows wild by the roadside and in the mountains, is akin to the yew tree and has a pleasant aromatic smell. The relief work consists in engaging the villagers of the district to bring in, for a price somewhat above what the very small local market offers, loads and loads of this *ma huang*. Last year's purchase justified the scheme as non-pauperizing and self-supporting.

"This year 200 tons of the herb were brought in, and that amount practically exhausted the supply within a radius of twenty miles, which is about the limit of the distance which it pays men to transport the herb.

"To see the villagers bringing in their daily cuttings was to make a study in transport. Men's backs and carrying poles, big two-men barrows and little ones, carts large and small, donkeys, cows and camels, all crowded round the gates waiting admission. When the gates were opened, it needed no little organization, and no less use of vocal organs, to sort out the line-up for the weighing of loads, carts in one place, beasts in another, and men sepa-

rately. Drying, stacking and packing for export were all accomplished by famine labor."

The present is the third consecutive hard year in Shansi province, and the herb picking serves as timely relief. According to the correspondent for the Peking paper, "it has been good to see the appreciation of the men who have earned the relief workers' help in this way."

In Tantung, North Shansi, the district producing the herb, it is stated that American, Canadian and German chemists have been showing a considerable interest in this collection of the herb, which they have begun to study recently. The New York Academy of Medicine states that the drug made from the herb is being used widely in the United States.



PERSONALS

Dr. and Mrs. M. L. Dillon, of Charleston, have recently returned from a short visit in the south, where Dr. Dillon attended the meeting of the Southern Medical Association at Asheville, N. C.

Dr. Harry M. Hall and Dr. R. U. Drinkard, of Wheeling, spent several days last month at the Mayo Clinic, Rochester, Minn.

Among the Bluefield doctors who attended the S. M. A. meeting at Asheville were Dr. C. M. Scott, Dr. C. T. St. Clair, Dr. R. O. Rogers, Dr. David B. Lepper, Dr. Andrew E. Amick, Dr. E. W. Horton and Mrs. Horton.

Dr. C. A. Ray, president of the state association, was in Morgantown last week, where he took part in the inauguration exercises of Dr. John Roscoe Turner, new president of West Virginia University. While in the university city, Dr. Ray also spoke before the meeting of state health officers on Nov. 28.

Dr. H. R. Glass, of Charleston, has recently returned from a deer hunt in the northern part of West Virginia. He was accompanied by Dr. R. E. Woodall.

Dr. O. H. Jennings has resigned as county health officer of Mingo county. Dr. Jennings was located at Williamson.

Index to Volume XXIV

The West Virginia Medical Journal

A

Abdomen, Surgical Limitations Within the—Wade H. St. Clair, M.D.	447
Abdominal Conditions, Acute, Surgery of—A. G. Rutherford, M.D.	114
Abscess, Acute Pulmonary—Boyd F. Brown, M.D.	498
Anemias of Childhood—Claude L. Holland, M.D.	608
Ano-Rectal Complaint, Interpretation of—C. C. Mechling, M.D.	212
Armbrecht, Edward C.—Secondary Syphilis Complicated by a Septic Mouth	341
Arsenic in Dermatology—L. G. Beinhauer, M.D.	601
Arthroplasty of the Knee—Willis C. Campbell, M.D.	529
Artificial Pneumothorax—Walter E. Vest, M.D.	535

B

Barber, T. M.—Hypertension in a Child	186
Barksdale, G. H.—Diagnosis of Gall Bladder Disease	223
Beinhauer, L. G.—Arsenic in Dermatology	601
Birth Injuries and Allied Conditions—A. A. Shawkey, M.D.	125
Bloss, James R.—Toxemias of Early Pregnancy	279
Bone Graft Surgery—J. O. Rankin, M.D.	18
Borman, Milton C.—Diet in Nephritis and in Gall Bladder Disease	216
Borman, Milton C.—Gunshot Wounds of the Heart	460
Borman, Milton C.—Postmortem Findings in a Death from Burns	184
Breast Tumors, Conservative Surgical Treatment of—L. L. McArthur, M.D.	105
Bronchoscopy—E. E. Gill, M.D.	173
Brown, Boyd F.—Late Syphilis	228
Brown, Boyd F.—Acute Pulmonary Abscess	498
Brown, Fred A.—Intestinal Tuberculosis	274
Buford, Robert King—Surgical Clinics of Europe	71
Buford, Robert King—Surgical Treatment of Goiter	166
Buford, Robert King—Traumatic Rupture of Spleen	281

C

Campbell, Willis C., M.D.—Arthroplasty of the Knee	529
Cancer Malignancy, Variations in Degree of—Churchill Hodges, M.D.	219
Cannaday, John E.—Some Calamities that May Follow Interruption of Pregnancy	30
Cardiac Arrhythmias, Interpretation and Significance of—Virgil E. Simpson, M.D.	1
Carditis, Acute and Subacute Bacterial Endocarditis—John W. Gilmore, M.D.	502
Caudal Anesthesia—T. Judd McBee, M.D.	284
Cesarean Section, Indications for—E. T. W. Hall, M.D.	457
Congenital Hypertrophic Pyloric Stenosis—J. T. Thornton, M.D.	591
Compensation Department, Relation of, to Hospitals of the State—C. L. Heaberlin	153
Convention Minutes	347
Convention Program	254

D

Dannreuther, Walter E.—Office Treatment of Gynecologic Patients	53
Davis, Luther C.—My Experience with the Electrocardiograph	548
Diabetes Mellitus, Treatment of—Elliott P. Joslin, M.D.	477
Diabetes, Treatment of—Jacob S. Hackney, M.D.	267
Diarrheal Conditions in the Child—K. M. Jarrell, M.D.	552
Diarrhea, Infantile—W. Byrd Hunter, M.D.	382
Dick, George F.—Methods for the Control of Scarlet Fever	441
Dickerson, W. E.—Fusospiroloosis of the Oropharynx	119
Digestion, Mechanisms of Normal, and Their Significance—A. C. Ivy, M.D.	209
Dyer, Charles E.—Physical Examination of School Children	605

E

Electrocardiograph, Experience with—Luther C. Davis, M.D.	548
Electrical Shock—Hugh G. Thompson, M.D.	460
Evans, G. F.—Early Diagnosis of Tuberculosis in the Adult.	377

F

Fisher, C. F.—Technique of Uterine Suspension	110
Foreign Bodies in the Stomach—Frank V. Langfitt, M.D.	79
Freiberg, Albert H.—Some of the Surgical Aspects of Infantile Paralysis	425
Fulton, W. S.—Observations on the Gall Bladder Problem	318
Fusosporillosis of the Oropharynx—W. E. Dickerson, M.D.	119

G

Gale, Sparrell S.—Surgical Treatment of Pulmonary Tuberculosis	122
Gall Bladder Disease, Diagnosis of—G. H. Barksdale, M.D.	223
Gall Bladder Problem, Observations on—W. S. Fulton, M.D.	318
Gill, E. G.—Bronchoscopy	173
Gilmore, John W.—Acute Carditis and Subacute Bacterial Endocarditis	502
Goiter, Surgical Treatment of—Robert King Buford, M.D.	166
Goiter, Endemic, and the Iodine Question, Pathology of—H. S. Keister, M.D.	271
Goiterous Conditions, Medical Consideration of—H. L. Robertson, M.D.	170
Gunshot Wounds of the Heart—Milton C. Borman, M.D., and Wm. R. Laird, M.D.	460
Gynecologic Patients, Office Treatment of—Walter T. Dannreuther, M.D.	53

H

Hackney, Jacob S.—Treatment of Diabetes	267
Hall, E. T. W.—Indications for Cesarean Section	458
Hall, S. S.—Acute Surgical Mastoiditis	495
Hamman, Louis—Prognosis of Hypertension	157
Hartman, E. C.—Sarcoma of the Tonsil	497
Heaberlin, C. L.—Relationship of Compensation Department to Hospitals of State	153
Health Office, Medical Profession and the Laity—John Thames, M.D.	198
Heart Failure, Broken Compensation and—Charles O'Grady, M.D.	507
Henson, E. Bennette—Summary of What We Know of Infantile Paralysis	435
Henson, E. Bennette—Operative Treatment of Hernia of Coal Miners with Living Sutures	32
Henson, E. Bennette—Prevention of Shock in Emergency Surgery	214
Hernia, Treatment with Living Sutures—E. Bennette Henson, M.D.	32
Hodges, Churchill—Variations in the Degree of Cancer Malignancy	219
Hodges, G. G.—Infant Feeding	393
Holland, Claude L.—Anemias of Childhood	608
Hospital, Field of, in Cure of Industrial Workers—James McClung, M.D.	288
Hunt, Verne C.—Factors in Treatment of Surgical Lesions of the Kidney	582
Hunter, W. Byrd—Infantile Diarrhea	382
Hupp, Frank LeMoyne—Interpretation of Standards	181
Hupp, Frank LeMoyne—Impressions of a Trip to Italy	573
Hypertension in a Child—T. M. Barber, M.D.	186
Hypertension, Prognosis of—Louis Hamman, M.D.	157

I

Industrial Medicine and Surgery, Gorgas Idea Applied to—R. H. Walker, M.D.	325
Infant Feeding—G. G. Hodges, M.D.	393
Infant Feeding—K. M. Jarrell, M.D.	385
Infantile Paralysis, Some Surgical Aspects of—Albert H. Freiberg, M.D.	425
Infantile Paralysis, Summary of What We Know About—E. Bennette Henson, M.D.	435
Iodized Oil in the Diagnosis and Prognosis of Chronic Maxillary Sinusitis, Use of—E. Lloyd Jones, M.D.	452
Irwin, G. G.—The Prostatic Patient	588
Ivy, A. C.—The Mechanisms of Normal Digestion and Their Significance	209

J

Jarrell, K. M.—Infant Feeding	385
Jarrell, K. M.—Thoughts on Diarrheal Conditions in the Child	552
Jones, A. L.—Secondary Syphilis Complicated by a Septic Mouth	341

Jones, E. Lloyd—Use of Iodized Oil in the Diagnosis and Prognosis of Chronic Maxillary Sinusitis.....	452
Joslin, Elliott P.—Treatment of Diabetes Mellitus.....	477

K

Kalbfleisch, W. K.—Intravenous Administration of Sodium Tetra-Iodophthalein.....	343
Keister, H. F.—Pathology of Endemic Goiter and the Iodine Question.....	271
Knee, Arthroplasty of—Willis C. Campbell, M.D.....	529

L

Laird, Wm. R.—Gunshot Wounds of the Heart.....	460
Langfitt, Frank V.—Foreign Bodies in the Stomach.....	79
Lesions of the Kidney, Surgical Factors in Treatment of—Verne C. Hunt, M.D.....	582
Lyon, George M.—Purulent Meningitides of Infancy.....	24

M

MacGregor, D. A.—Pellagra.....	280
Mastoiditis, Acute Surgical—S. S. Hall, M.D.....	493
McArthur, L. L.—Conservative Surgical Treatment of Breast Tumors.....	105
McBee, T. Judd—Caudal Anesthesia.....	284
McClung, James—Field of Hospital in Care of Industrial Workers.....	288
McCuskey, Laverty H.—Anterior Poliomyelitis.....	43
McSherry, James Whann, M.D.....	197
Mechling, C. C.—Interpretation of the Ano-Rectal Complaint.....	212
Membership Roster.....	47
Meningitides of Infancy, The Purulent—Geo. M. Lyon, M.D.....	24
Mitchell, James C.—The Treatment of Certain Surgical Infections.....	489
Mithoefer, Wm.—Recent Views Concerning the Nasal Accessory Sinuses.....	538
Moore, M. A.—Some Observations in 626 Obstetrical Cases.....	66
Morton, Charles Bruce—Experiments with Peptic Ulcer, Their Production and Healing.....	374
Mydriatics and Myotics in Eye Ground Examinations—W. S. Shepherd, M.D.....	546
Myelitis, Acute Transverse—Walter E. Vest, M.D.....	369

N

Nasal Accessory Sinuses, Recent Views Concerning—Wm. Mithoefer, M.D.....	538
Nephritis and Gall Bladder Disease, Diet in—Milton C. Borman, M.D.....	216

O

Obstetrical Cases, Some Observations in 626—M. A. Moore, M.D.....	66
O'Grady, Charles—Broken Compensation and Heart Failure.....	507
Oral Conditions, Relation to Our Specialty—C. B. Rohr, M.D.....	83
Orr, H. Winnett—Treatment of Osteomyelitis by Drainage and Rest.....	313
Osteomyelitis, Treatment of, by Drainage and Rest—H. Winnett Orr, M.D.....	313

P

Parran, Thomas, Jr.—Relation of Health to the Rural Communities.....	177
Pellagra—D. A. MacGregor, M.D.....	280
Pettit, J. G.—Early Diagnosis of Tuberculosis in the Adult.....	377
Pettit, J. G.—Our Tuberculosis Sanatoria.....	61
Physical Examination of School Children—Charles E. Dyer, M.D.....	605
Poliomyelitis, Acute—R. R. Stuart, M.D.....	436
Poliomyelitis, Anterior—Laverty H. McCuskey, M.D.....	43
Postmortem Findings in a Death from Burns—C. W. Stallard, M.D., and M. C. Borman, M.D.....	184
Pope, Curran—Method for Treating Neural Syphilis.....	15
Pregnancy, Calamities Following Interruption of—John E. Cannaday, M.D.....	30
Pregnancy, Extra-Uterine—C. B. Pride, M.D.....	82
Pregnancy, Toxemias of Early—James R. Bloss, M.D.....	279
President's Address—C. A. Ray, M.D.....	261
Pride, C. B.—Extra-Uterine Pregnancy.....	82
Prostatic Patient, The—G. G. Irwin, M.D.....	588
Pulmonary Diseases, Differential Diagnosis of—Churchill Robertson, M.D.....	64
Pulmonary Tuberculosis, Early Diagnosis of—Churchill Robertson, M.D.....	602
Pulmonary Tuberculosis, Surgical Treatment of—Sparrell S. Gale, M.D.....	122

Q-R

Rankin, J. O.—Bonegraft Surgery.....	18
Ray, C. A.—President's Address.....	261
Robertson, Churchill—Differential Diagnosis of Pulmonary Diseases.....	64
Robertson, Churchill—Early Diagnosis of Pulmonary Tuberculosis.....	602
Robertson, H. L.—Medical Consideration of Common Goiterous Conditions.....	170
Rohr, C. B.—Some Oral Conditions and Their Relation to Our Specialty.....	83
Rural Communities, Relation of Health to—Thos. Parran, Jr., M.D.....	177
Rutherford, A. G.—Surgery of Acute Abdominal Conditions.....	114
Rutherford, A. G.—Surgical Treatment of Perforated Peptic Ulcer.....	389

S

Scarlet Fever, Methods for the Control of—Geo. F. Dick, M.D.....	441
Shawkey, A. A.—Birth Injuries and Allied Conditions.....	125
Shepherd, W. S.—Mydriatics and Myotics in Eye Ground Examinations.....	546
Sheppe, Wm. M.—Intravenous Administration of Sodium Tetra-Iodophenolphthalein.....	343
Shock in Emergency Surgery, Prevention of—E. Bennette Henson, M.D.....	214
Simpson, J. N.—An Antigen for Treatment of Tuberculosis, Its Preparation and Use.....	329
Simpson, Virgil E.—Interpretation and Significance of Cardiac Arrhythmias.....	1
Sodium Tetra-Iodophenolphthalein—Wm. M. Sheppe, M.D., and Wm. K. Kalbfleisch, M.D.....	343
Spleen, Traumatic Rupture of—Robert King Buford, M.D.....	281
Spray, R. S.—An Antigen for Treatment of Tuberculosis, Its Preparation and Use.....	329
Spray, Robb Spalding—Discussion and Demonstration of Kahn Test for Syphilis.....	486
Stallard, C. W.—Postmortem Findings in a Death from Burns.....	184
St. Clair, Wade H.—Surgical Limitations Within the Abdomen.....	447
Stuart, R. R.—Acute Poliomyelitis.....	436
Surgical Clinics of Europe—Robert King Buford, M.D.....	71
Surgical Infections, Treatment of—James C. Mitchell, M.D.....	489
Syphilis, Discussion and Demonstration of the Kahn Test for—Robb Spalding Spray, Ph.D.....	486
Syphilis, Late—Boyd F. Brown, M.D.....	228
Syphilis, Neural, Method of Treating—Curran S. Pope, M.D.....	15
Syphilis, Secondary, Complicated by a Septic Mouth—A. L. Jones, M.D., and E. C. Arm-brecht, D.D.S.....	341

T

Thames, John—Health Office, Medical Profession and the Laity.....	198
Thompson, Hugh G.—Electrical Shock.....	460
Thornton, J. T.—Congenital Hypertrophic Pyloric Stenosis.....	591
Tonsil, Sarcoma of—E. C. Hartman, M.D.....	497
Transfusion of Blood—C. L. Woodbridge, M.D.....	483
Tuberculosis, An Antigen for Treatment of—R. S. Spray, Ph.D., and J. N. Simpson, M.D.....	329
Tuberculosis, Early Diagnosis of, in the Adult—J. G. Pettit, M.D., and G. F. Evans, M.D.....	377
Tuberculosis, Intestinal—Fred A. Brown, M.D.....	274
Tuberculosis Sanatoria—J. G. Pettit, M.D.....	61

U-V

Ulcer, Peptic: Their Production and Healing, Experiments—C. B. Morton, M.D.....	374
Ulcer, Perforated Peptic, Surgical Treatment of—A. G. Rutherford, M.D.....	389
Uterine Suspension, Technique of—C. F. Fisher, M.D.....	110
Vest, Walter E.—Acute Transverse Myelitis.....	369
Vest, Walter E.—Artificial Pneumothorax.....	535

W

Walker, R. H.—The Gorgas Idea Applied to Industrial Medicine and Surgery.....	325
Woodbridge, C. L.—The Transfusion of Blood.....	483

OCTOBER MORBIDITY REPORT

	Chickenpox	Diphtheria	German Measles	Influenza	Measles	Meningitis Cer. Spi.	Poliomyelitis	Scarlet Fever	Smallpox	Tuberculosis All forms	Typhoid Fever	Whooping Cough
Barbour							1				1	
Berkeley		2						20			1	
Boone	3	10			19			35			8	1
Braxton		4					1	2			1	
Brooke		6			2						1	
Cabell		23					1	54	3		15	
Calhoun							1					
Clay	4						1					
Doddridge					5						1	1
Fayette		4		7			1	15	3		9	
Gilmer											3	
Grant								1				
Greenbrier		5									2	
Hancock		2					1					1
Harrison	73	1			1		5	12			6	5
Jefferson								1				
Kanawha	6	17		2	3			41		4	8	
Logan		5						13			12	
Marion	4	6				1	1	6			9	
Marshall	2	2	1					1		3	2	
Mason				17							6	
Mercer		5		1				10			4	
Mineral	8	4		11	12		6	9		9	5	13
Mingo	4							6				
Monongalia	1	3					1	11		2		1
Monroe		3						2			1	20
Morgan		1										
Nicholas		2						3			5	
Ohio	8	2	1		18		2			12	2	3
Pocahontas		1						3			12	
Preston		3					1				1	
Putnam								1		1		
Raleigh	5	12						9			4	
Randolph		2					1	1				
Roane								1				
Summers								9			3	
Tucker							1	1				
Wayne		9										
Webster		5					1	2				
Wetzel					1		5	3				10
Wood	1	1			2			13	4	1		
Wyoming		2		3				2				14
TOTALS	119	142	2	41	63	1	31	287	10	32	122	69

W O M A N ' S . A U X I L I A R Y

Program Suggestions

There follows the first of a series of program suggestions for Medical Auxiliary meetings. Each program will be devoted to the study of medical contributions from one country.

Not long ago a popular vote was taken in France to determine whom the people thought the greatest man their country had produced. Not Napoleon or any other that we might guess received the most votes, but M. Louis Pasteur won by a large margin.

We suggest that the first program be composed of two short talks or papers prepared by the members, with "French Scientists" as the general subject, and the following themes used:

"M. Louis Pasteur and His Contribution."

"Madame Curie."

Hygeia Prizes Offered

The Committee on *Hygeia* of the Auxiliary to the Kanawha Medical Society has sent in subscriptions to *Hygeia* for fifteen of the rural schools in the county. As a stimulant to workers for the *Hygeia* magazine a prize of a small automobile or a trip to Europe is offered to the state auxiliary sending in the first one thousand subscriptions; this prize is in turn to be awarded to the individual in that state securing the most subscriptions in three months.

That is well worth working for, but there are other equally good reasons why we should

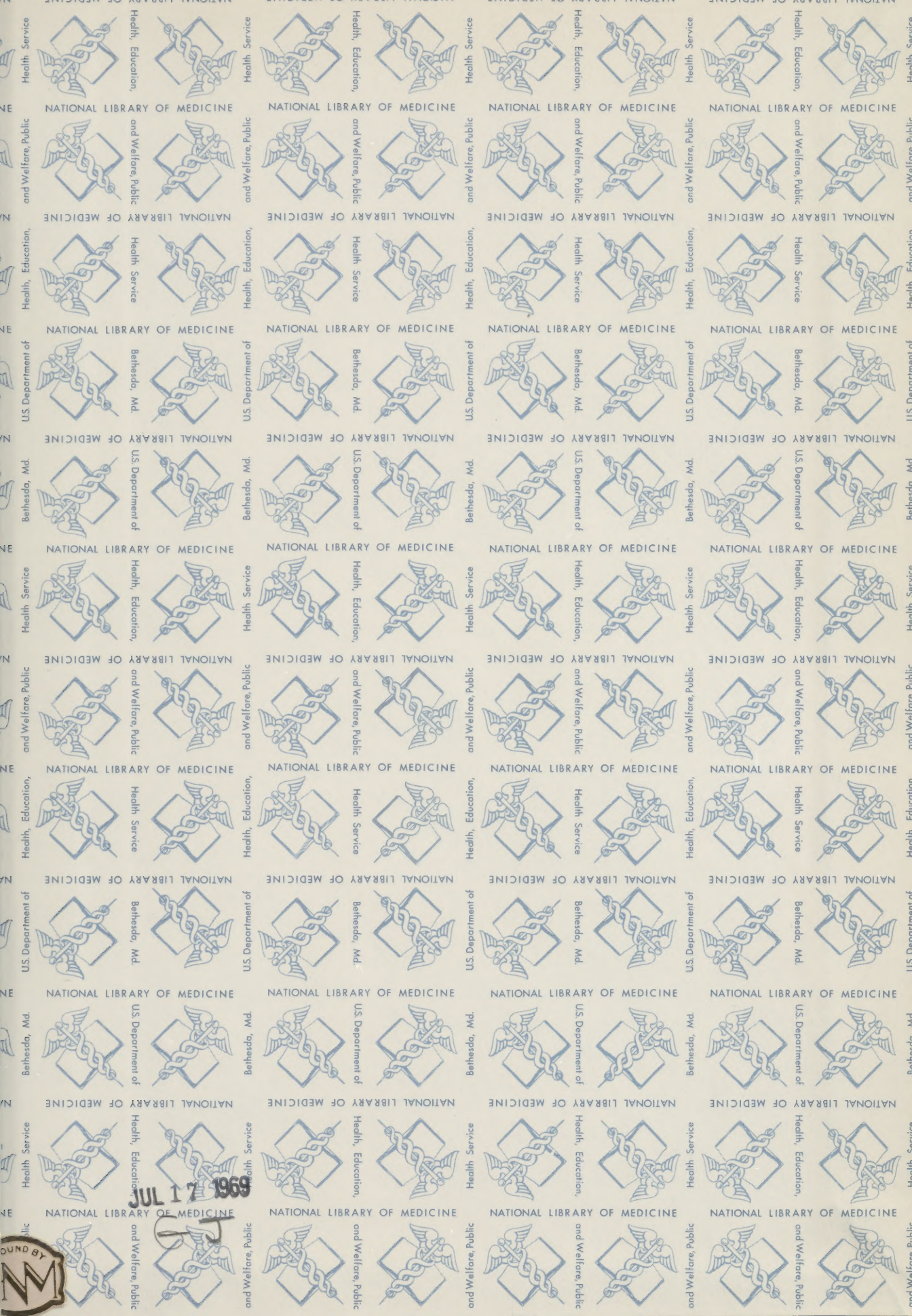
do our best to try to put *Hygeia* in all schools, libraries, clubrooms, and homes of our state. It is the best health magazine published in the United States. There are a number of yellow journals in circulation today knocking vaccination and various other treatments of the medical profession; there are the patent medicines which are worthless and often dangerous, and the quack cures for which the public pays out millions of dollars a year.

Public Education

We know that the achievements of modern medicine are marvelous. What better can the auxiliaries do than to educate the public along these lines and protect them from this waste of money and protect the doctors from this yellow journalism? This is a great work for the auxiliaries, and the best way to accomplish this would be for all to get together behind the *Hygeia* magazine and help put it on every physician's reading table and in as many homes as we can. It is interesting and instructive to every member of the family, and pleasantly bridges the gap heretofore existing between the medical profession and the public.

The *Hygeia* makes a wonderful Christmas gift. Let us all give many subscriptions this year. There are some attractive group prices offered. Write your county *Hygeia* chairman for them, or to Mrs. H. A. Whistler, state chairman of *Hygeia* extension committee, 437 Grove Avenue, Clarksburg, W. Va.





JUL 17 1969



NATIONAL LIBRARY OF MEDICINE



NLM 03948219 0